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ABSTRACT

This activity book for teachers contains lessons designed to motivate students to master world geography. Questions on geographic concepts are formulated as mysteries for students to solve. The materials are written with seventh-grade students in mind, but could be adapted for use with other grade levels. Some of the lessons are more challenging than others. Each lesson has a student handout (with an illustration, data, and a central question) and a teacher factsheet (giving teachers the needed data and answers). The lessons are distributed over eight sections: (1) Introduction (6 mystery lessons); (2) Anglo-American Region (9 mystery lessons); (3) Latin American Region (10 mystery lessons); (4) Asia (13 mystery lessons); (5) European Region (8 mystery lessons); (6) African Region (12 mystery lessons); (7) The Middle Eastern Region (8 mystery lessons); and (8) Australia and New Zealand (3 mystery lessons). (DB)

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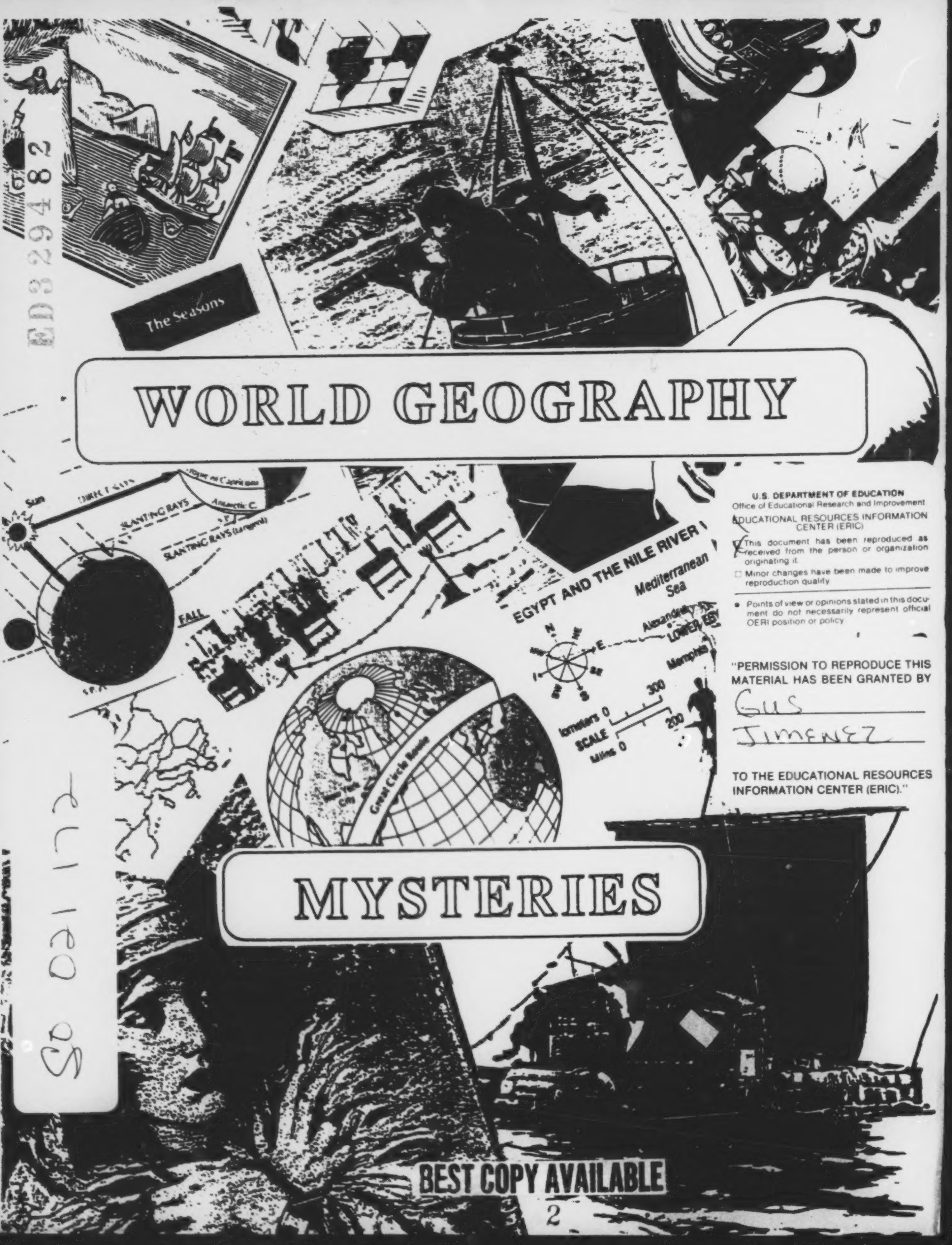
The Seasons
Sun
DIRECT RAYS
SLANTING RAYS
SLANTING RAYS (tangent)
Antarctic C.
FALL
EGYPT AND THE NILE RIVER
Mediterranean Sea
Alexandria
LOWER EGY
Memphis
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N
SCALE
Miles 0
Kilometers 0
300
200
Great Circle Route

WORLD GEOGRAPHY

MYSTERIES

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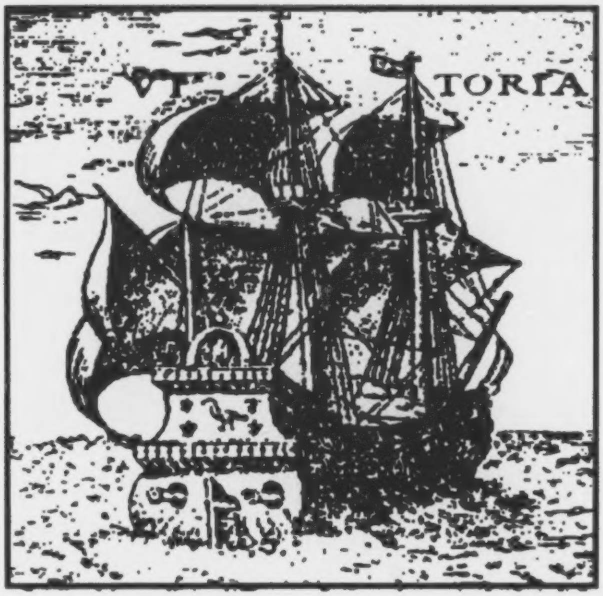
MYSTERIES IN WORLD GEOGRAPHY

A Supplement Activity Book for

Teachers of Seventh Grade

World Geography in

Hillsborough County Public Schools



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HOW TO USE THIS BOOK

Students love mysteries

The lessons in this book are designed to motivate students to master world geography. They are designed to be high interest. They are designed so students will use their knowledge and learn to ask logical questions. They are designed so students, when they cannot solve a mystery, will read their books with a purpose.

Skill Objectives

1. To develop the cognitive skills of searching and data processing;
2. To build logical questioning abilities;
3. To develop problem-solving skills; and
4. To develop reading skills, using the textbook and complementary materials.

Contents

This book contains lessons which teachers may elect to infuse into their world geography course. Some are at higher levels than others. Each lesson has a student handout (with illustration, data, and a central question) and a teacher factsheet (giving teachers the needed data and the answer).

The distribution of these lessons throughout the geography course is as follows:

1. Introduction (6 mystery lessons),
2. Anglo-American Region (9 mystery lessons),
3. Latin American Region (10 mystery lessons),
4. Asia (13 mystery lessons),
5. European Region (8 mystery lessons),
6. African Region (12 mystery lessons),
7. The Middle Eastern Region (8 mystery lessons) and
8. Australia and New Zealand (3 mystery lessons).

The Process:

In the classroom, what does the teacher do? Well, the lessons are used like a game of 2O Questions.

1. The teachers give the students the handout sheet for a mystery. The teachers set the mystery into the context of the world geography course. (Usually a mystery is used to introduce a lesson, or to conclude a lesson or a chapter.)

2. The students examine the handout (reading the data and examining the illustration). After appropriate "wait time" the teacher poses the central question on the handout. This is the "mystery" which students are to solve.

3. The teacher explains that he/she will answer any student questions, which can be answered YES or NO. No other questions may be asked.

4. The teacher conducts the class inquiry - taking only yes or no-type questions. The teacher may encourage quiet students to participate.

5. The teacher, of course, has the FACTSHEET to help him/her answer the students questions.

   When students are stumped, the teacher may call on a student to ask for a summary of what the class knows and does not know thus far in their search for a solution. Or the teacher may do the summary for the class.

6. As students improve in their questioning abilities, the teacher should call on students to state a hunch and ask two or more questions to test our their hunch. (This teaching model actually simulated social scientific research.)

7. If students cannot solve the mystery by asking the teacher yes and no-type questions, fine. They then turn to their textbooks for additional data. If necessary, they may also use other resources.

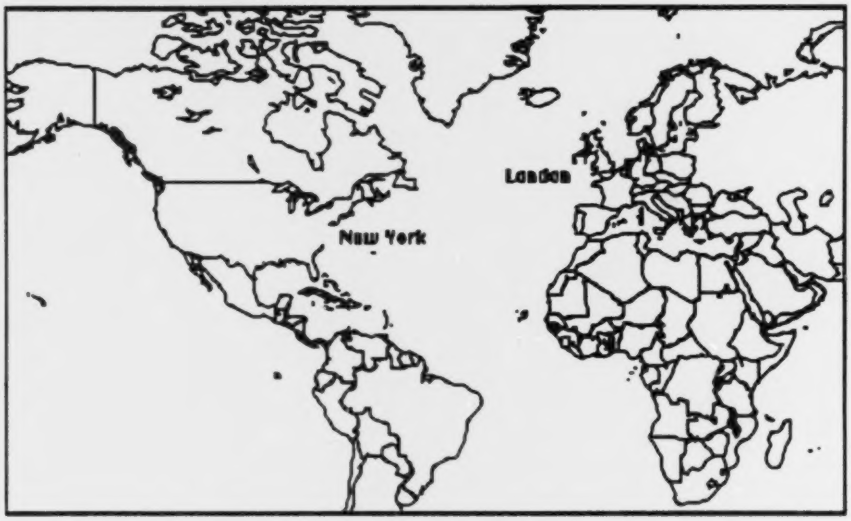
8. Once students have solved the mystery, the teacher needs to conduct a review of the students' questioning performance. Why did they ask this, or that, question? What was its purpose? What was the underlying or implied hunch (hypothesis) which they had in mind? Which questions were most fruitful...and least helpful?

   It is this discussion - the debriefing - which helps students make the most gains in questioning abilities for forthcoming mystery lessons - and for REAL WORLD inquiry or problem-solving.

PART ONE

MAPPING AND PHYSICAL GEOGRAPHY

WORLD GEOGRAPHY MYSTERY



A world geography class had a great opportunity! They were going to travel from New York to London by airplane. Upon departing from New York on their flight, the students were surprised to learn that they would fly north over Newfoundland and Iceland, and then south over Northern Ireland on their way to London.

Central Question:

Why didn't the airplane just fly directly east from New York to London?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

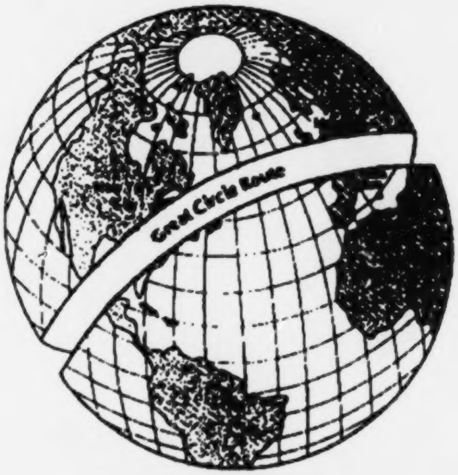
Why didn't the airplane just fly directly east from New York to London?

Facts:

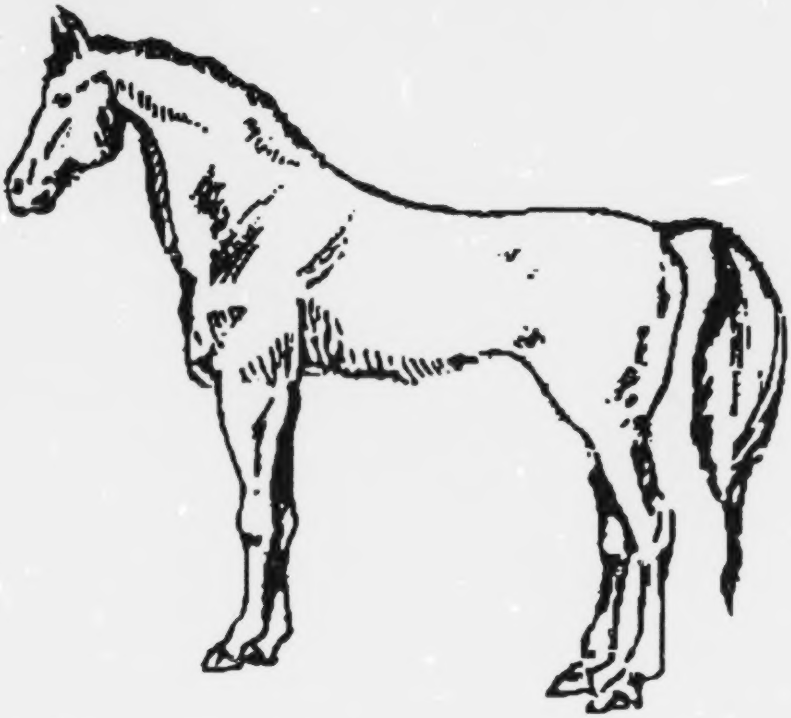
1. The shortest distance between two points on Earth is not a straight line on a flat map.
2. The shortest distance between two places on Earth is a Great Circle Route.
3. A Great Circle Route is any circle that divides the globe into two equal halves. The only parallel that is a great circle route is the equator. No meridian is a great circle route, because it only goes half-way around the globe.
4. A great circle route appears as a long curve on a flat map - but flat maps are not a true picture of the Earth's reality! In 1524, Giovanni da Verrazano, sailed a great circle route to America. In 1537 a Portuguese navigator published the details of the great circle route navigation.

Appropriate Conclusion(s):

The pilot, following the shortest distance between New York and London, flew the airplane on a Great Circle Route.



WORLD GEOGRAPHY MYSTERY



The so-called "Horse Latitudes" are ocean regions which are about 28 degrees to 35 degrees latitude in the Northern and in the Southern Hemispheres. The winds are calm, or very light. The weather tends to be warm and clear. In the days of sailing ships, sailors named these regions the "Horse Latitudes."

Central Question:

Why are these ocean regions called the "Horse Latitudes"?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why are these oceans regions called the " Horse Latitudes"?

Facts:

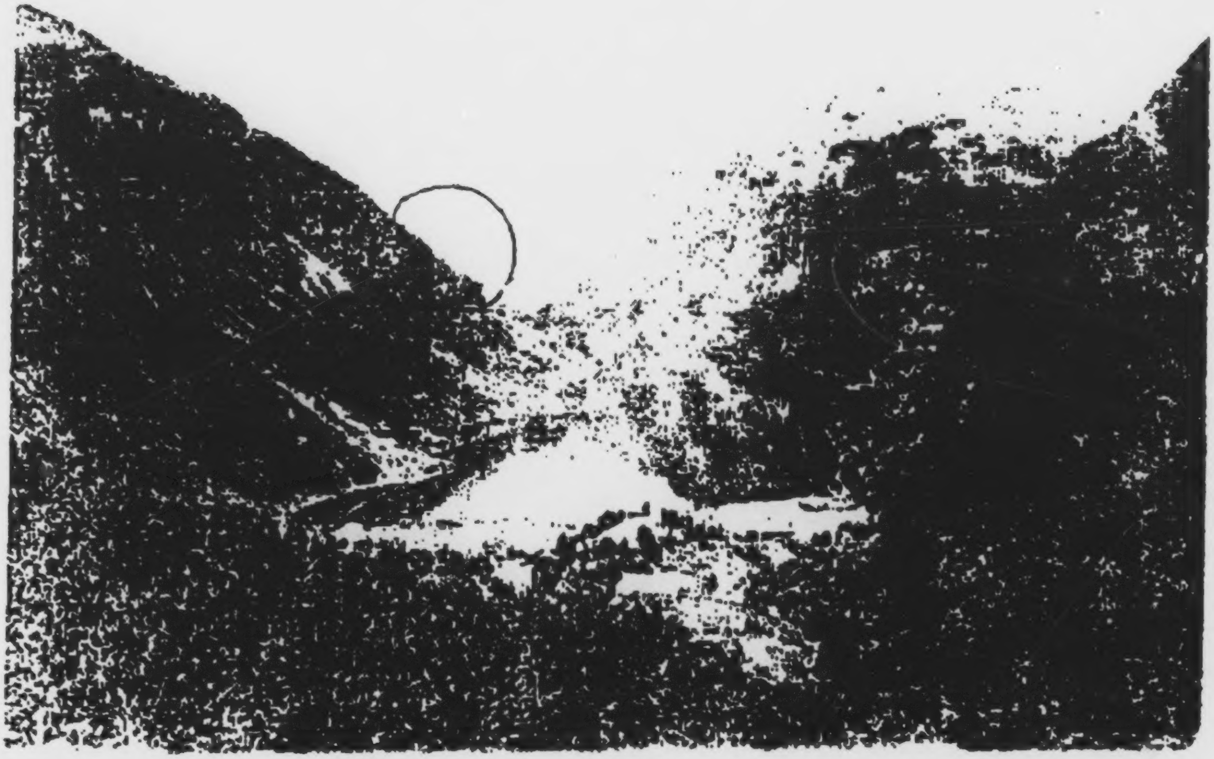
1. The Horse Latitudes are two ocean regions noted for their lack of strong winds. Two belts of calm extend around the Earth roughly at 30 degrees north and south latitude.

2. The regions center along the subtropical areas of high atmospheric pressure. They separate the strong trade winds from the prevailing westerly winds.

3. Sailors on old sailing ships were often becalmed in the calms of the Horse Latitudes. Horses carried between Europe or New England and the Indies often died. When thrown overboard, their bodies would float for days beside the becalmed vessels.

Appropriate Conclusion(s):

One explanation for the name "Horse Latitudes" is due to the dead horses floating along side becalmed sailing ships.



In the fjords of Norway, at night, the moon often appears to come around the sides of the fjell (mountain), rather than over it. This occurs in the winter months at the higher lattitudes.

Central Question:

Why does the moon appear to come around the mountain, rather than over it?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

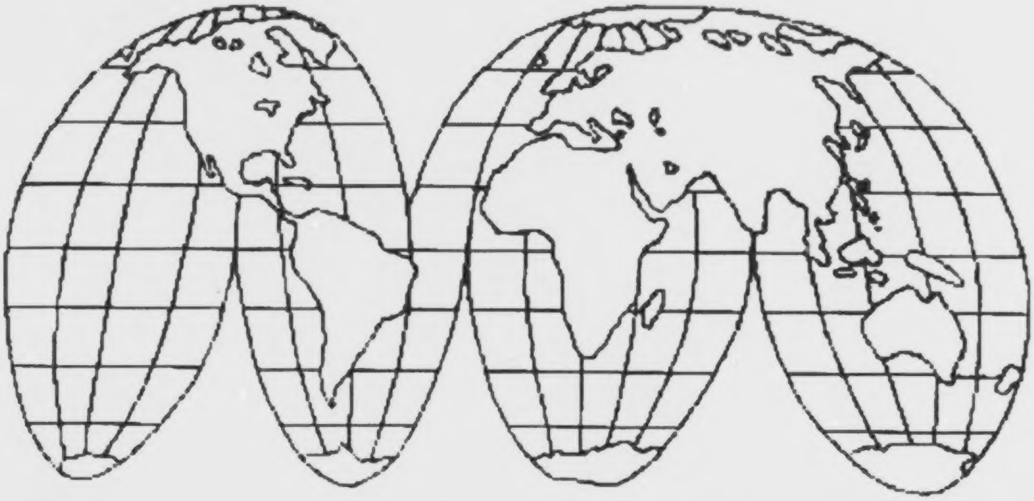
Why does the moon appear to come around the mountain, rather than over it?

Facts:

1. This occurs during the winter, during the winter solstice (December 22).
2. The appearance occurs at the highest latitudes in Norway, in the mountainous valleys.
3. Latitudes over 60 degrees north coupled with the tilt of the earth on its axis during the winter solstice period make the moon appear to be crossing the horizon, rather than passing "over" earth.

Appropriate Conclusion(s):

The high latitude (north), the tilt of the earth at the winter solstice, and mountainous terrain, together, make the moon appear to come around the mountain, rather than over it.



One opposite is the way water turns as it goes down a drain! The spinning of water in the Northern Hemisphere is clockwise. In the Southern Hemisphere, water goes down a drain counterclockwise!

Central Question:

Why does being in the Northern or the Southern Hemisphere affect the motion of draining water?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why does being in the Northern or the Southern Hemisphere affect the motion of draining water?

Facts:

1. The earth rotates upon its axis. Thus, water is in a rotating system.
2. Air and water currents in the Northern Hemisphere are deflected to the right; in the Southern Hemisphere to the left.
3. Gaspard Gustave de Coriolis (French, 1792-1843) first described this fictitious force called the Coriolis Force. But no force exists. The phenomenon is a natural result of the earth's rotation.

Appropriate Conclusion(s):

The Coriolis Force tries to explain the movement of objects in a rotating system. Actually there is no such force, but the water's movement is a natural and direct result of the earth's rotation.

WORLD GEOGRAPHY MYSTERY

EUROPE

A European man took his reindeer out early at 12:01 A.M. in broad summer daylight. He brought them home again at 12:01 P.M. and it was still broad daylight. Later, at 11:00 P.M. he went out to check on his reindeer and it was still daylight?

Central Question:

How could it be daylight all day long for this reindeer herder?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

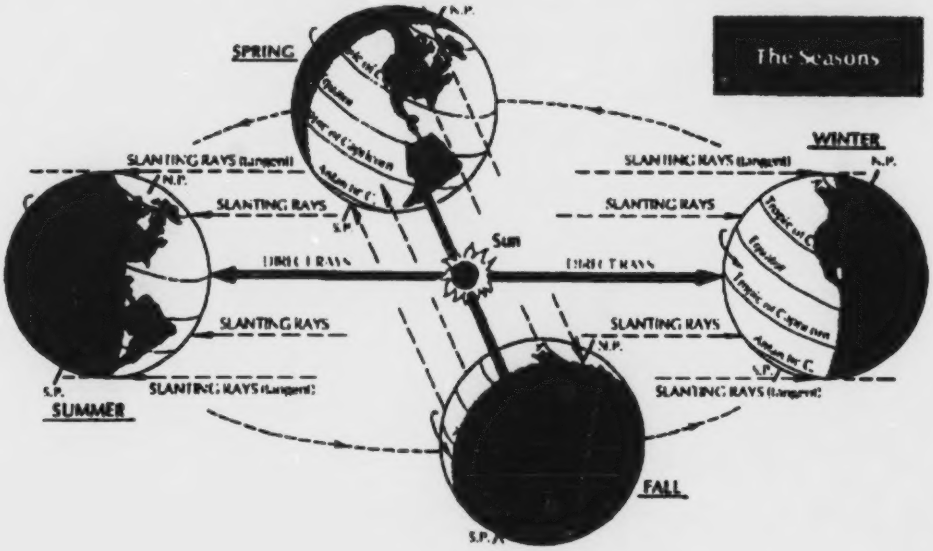
How could it be daylight all day long for this thoughtful reindeer herder?

Facts:

1. Beginning in late January, brief periods of daylight arrive near the poles. Each day the daylight period grows longer and longer until on May 10th the sun is shining twenty-four hours a day.
2. Non-stop daylight occurs from May 10 to August 2nd.
3. This same area is in total darkness from mid-November to late January.

Appropriate Conclusion(s):

Near the poles the summer day becomes almost 24 hours long, while the winter day is almost 24 hours of night darkness due to the rotation and tilt of the earth as it moves around the sun.


The Seasons
SPRING
N.P.
S.P.
WINTER
N.P.
S.P.
SUMMER
N.P.
S.P.
FALL
N.P.
S.P.
Sun
DIRECT RAYS
DIRECT RAYS
SLANTING RAYS (tangent)
SLANTING RAYS
SLANTING RAYS
SLANTING RAYS (tangent)
SLANTING RAYS (tangent)
SLANTING RAYS
SLANTING RAYS
SLANTING RAYS (tangent)
Equator
Tropic of Capricorn
Antarctic C.
Tropic of C.
Equator
Tropic of Capricorn
Antarctic C.

WORLD GEOGRAPHY MYSTERY

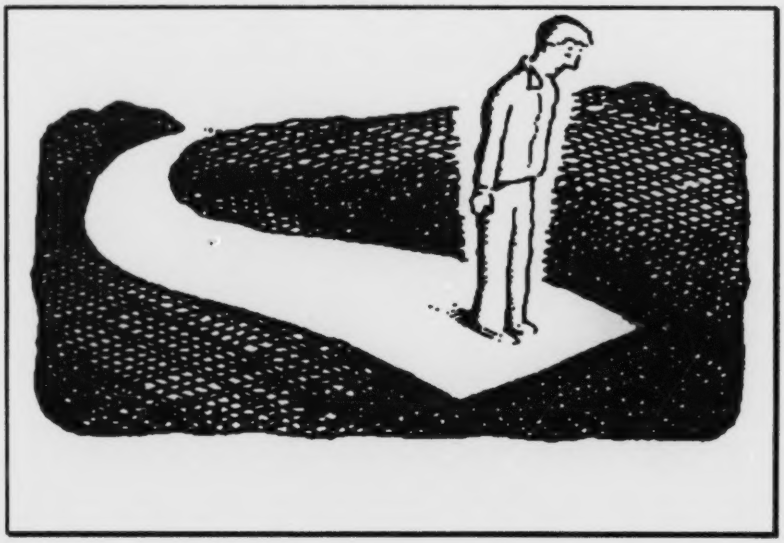
TURNPIKE
AVENUE
TERRACE
EXPRESSWAY
WAY STATION
FREEWAY
TOLLROAD
BOULEVARD
PLACE
STREET
BYE-WAY
WAYSIDE
INTERSTATE
WAYFARER
ROAD
WAY
COURT
PLAZA
HIGHWAY
THRUWAY
WAYWARD
BELTWAY
PIKE
HEAD WAY

Today, we have a lot of words for roads!

Today, we have a lot of words using "way".

Central Question:

Why is a road often called a "highway"?



Teacher Factsheet

Central Question:

Why is a road often called a "highway"?

Facts:

1. Early road were simply paths through or across a place. Forests were cut aside. The land was unshaped. It was used as it was.

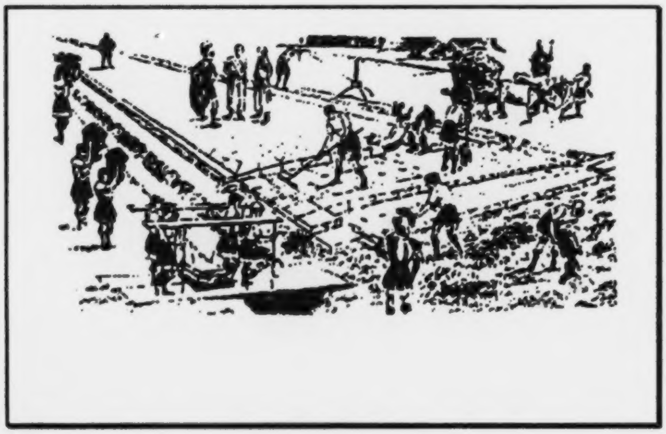
2. Later, roads were paths with some fill in the low, muddy spots in the pathway. Dirt, gravel, stones, and even logs were used to raise the low spots.

3. Roman roads in Italy and throughout the Empire took on a new form. They were raised above the surrounding land, and built upon a base.

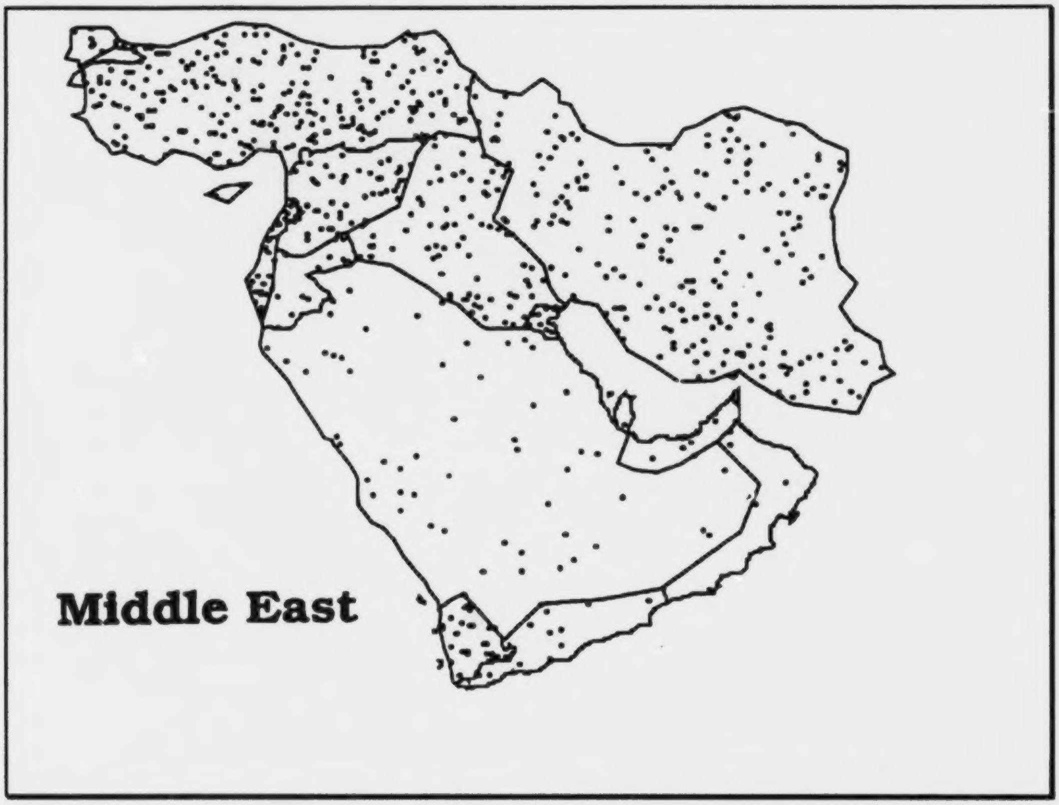
4. The Romans laced their Empire with good roads. They built straight roads, raised above the surface upon which they were built. They first dug away the topsoil and laid a base on stone. The stone was filled with sand or gravel. Curbs were installed on either side, higher than the lay of the land. The layers of mortar, broken stone mixed with lime were placed. These layers were covered with small stones mixed with hot lime. Finally, flat surface stones were laid, fitted tightly together. These reached from curb to curb with a rounded shape to drain water off the roadway.

Appropriate Conclusion(s):

Roads became known as "highways" since there were "ways" which were higher than the land which they crossed!



GEOGRAPHY MYSTERY



"Dots" are one type of symbol which map-makers use to depict places, people, production, and other things upon a map. This Middle East map has plenty of "dots" but no map legend!

Central Question:

What do these "dots" represent on this map of the Middle East?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

What do these "dots" represent on this map of the world?

Facts:

1. "Dots" are used by cartographers to represent quantities of people or production of some commodity.
2. Rainfall and water supply has a major affect on population.
3. Climate will minimal rainfall usually can not sustain large populations.
4. Rivers and other fresh water sources can meet the water needs of a population.

Appropriate Conclusion(s):

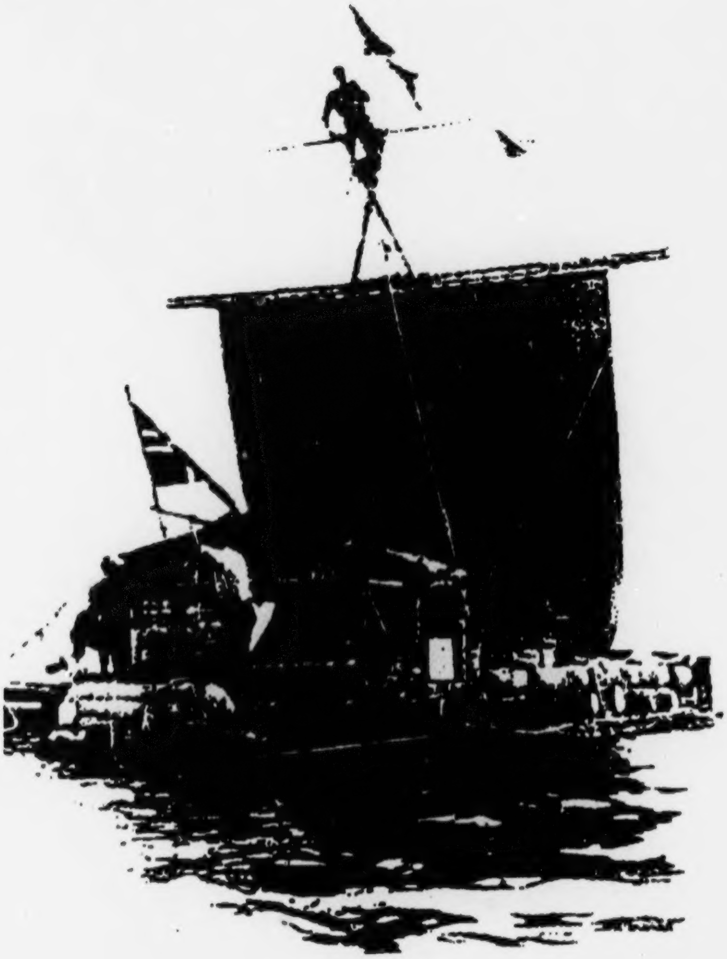
This map with its "dots" is a map showing the population of the Middle East and although much of the area has the same climate the population is different depending on the available water supply.

PART TWO

ANGLO-AMERICAN REGION

(The United States and Canada)

WORLD GEOGRAPHY MYSTERY



In May 1969, Thor Heyerdahl, with a crew of six, set sail from Morocco in a strange-looking craft names Ra. Heyerdahl set sail with the intention of crossing the Atlantic Ocean. Heyerdahl sailed a strange ship indeed, for it was made of bundles of reeds.

Central Question:

By the year 1969, the Atlantic Ocean had been crossed many times by many types of vessels. What was Heyerdahl trying to prove by crossing the Atlantic Ocean and why was he using a boat made of reeds?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

What was Heyerdahl trying to prove by crossing the Atlantic and why was he using a vessel made of reeds?

Facts:

1. Thor Heyerdahl was a Norwegian adventurer that had made his fame by a 1947 voyage across the Pacific from Peru to Polynesia. The vessel used in this passage was made of balsa wood and christened the Kon-Tiki. Heyerdahl was out to prove that the peoples of the South Pacific might have originally come from South America and that their boats of balsa wood were seaworthy enough to accomplish this task.

2. In May, 1969, with a crew of six, Heyerdahl again set sail from Morocco in a "new" vessel: the Ra (named for the Egyptian sun god). This time Heyerdahl was out to prove that ancient Egyptians might have crossed the Atlantic to settle in Central America.

3. Heyerdahl based his theory on similarities between the two cultures. Both the Incas and the Egyptians, for instance, built pyramids, and both made boats by lashing together bundles of reeds.

4. The vessel Ra was patterned on pictures seen on the walls of Egyptian tombs. It was built by lashing together bundles of papyrus reeds. The Ra was also equipped with sails and a rudder.

5. Heyerdahl's voyage, however, did not go smoothly. Heavy seas pounded the craft and the reeds became waterlogged. Sharks interfered with the crew's attempts to patch up the damage.

6. Finally, unwilling to risk the crew's lives further, Heyerdahl abandoned Ra to the sea. Heyerdahl and his crew were lifted from the Ra by a rescue vessel 600 miles short of their destination.

7. The Ra had become increasingly waterlogged and there was later consideration to the fact that the vessel probably had not been prepared in the same way as the ancient Egyptians had prepared their papyrus boats.

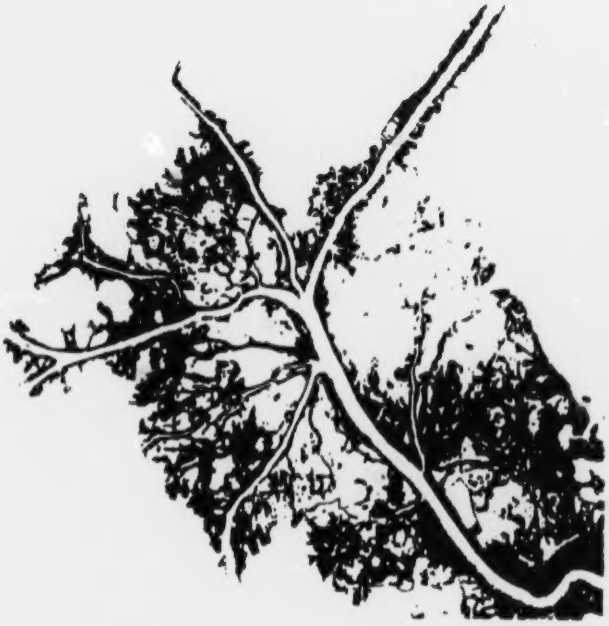
8. Perhaps, if the Ra had been properly prepared and Heyerdahl had experienced better weather, then the voyage of the Ra would have been successful.

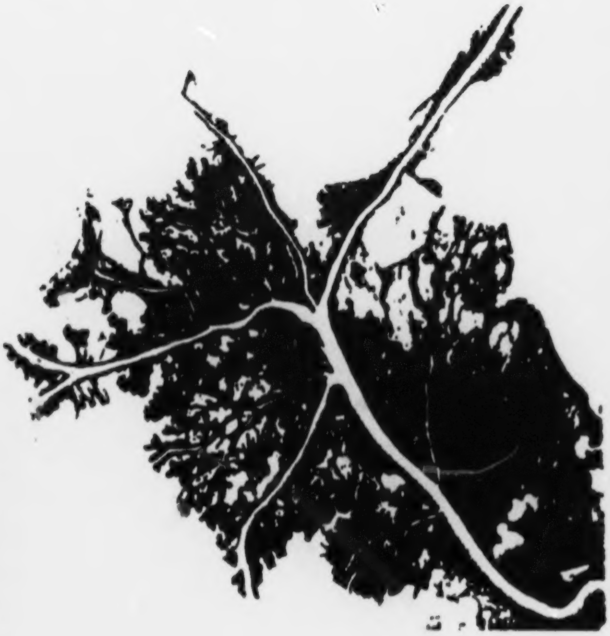
Appropriate Conclusion(s):

Thor Heyerdahl was trying to prove that the ancient Egyptians could have crossed the Atlantic Ocean to the New World in reed boats.

-Andrew Frederick Weckherlin, F.S.U., 1987

WORLD GEOGRAPHY MYSTERY





You are looking at two pictures of the same geographical feature. The pictures were taken from high in the atmosphere. They were taken over North America. One was taken in 1956 and the other in 1978.

Central Question:

What is the geographic feature of North America which is shown here? What has caused the change?

Maps: National Geographic, Volume 164, no. 2 (August, 1983).

WORLD GEOGRAPHY MYSTERY

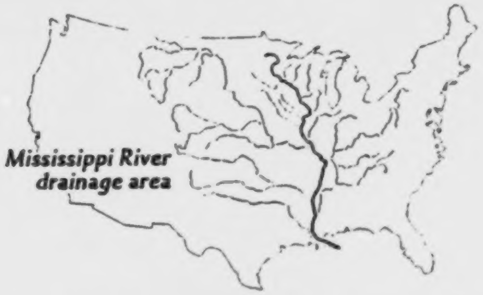
Teacher Factsheet

Central Question:

What is the geographic feature of North America which is shown here? What has caused the change?

Facts:

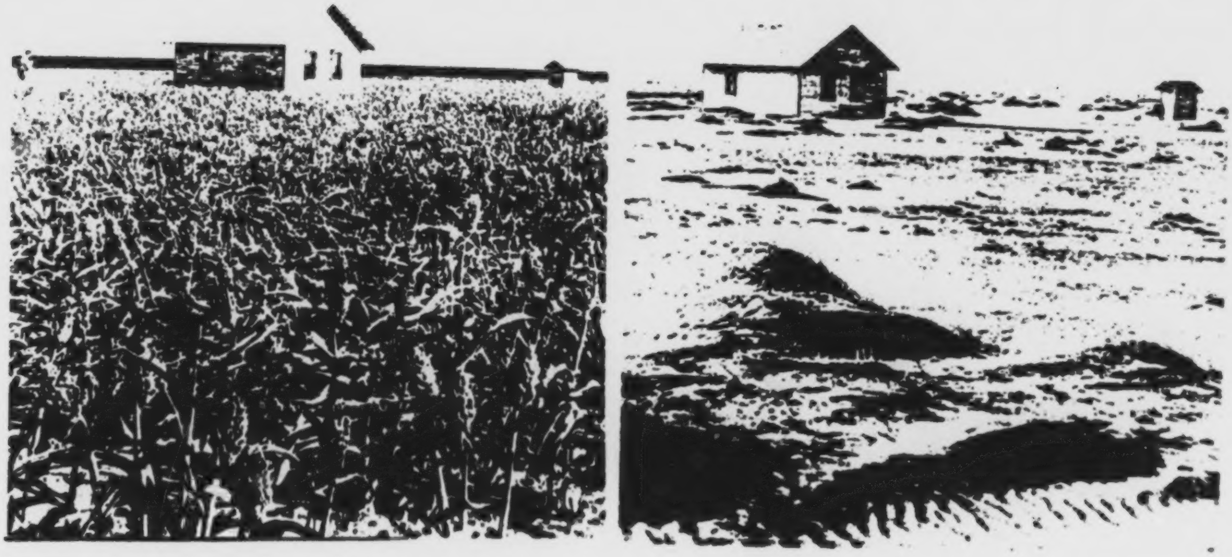
1. The aerial photographs are printed upside down. They show a 1956 and a 1978 version of the Mississippi River delta.



2. The rich marshes of the delta are "decaying" due to the building of water control systems up river (reducing the flow of sediments carried to the delta) and due to building canals in the search for petroleum in the delta (allowing salt water intrusion).
3. Water-borne sediments could not replenish the wetlands of the delta with the channelization of the river and with its levee system.
4. The modern delta began its development in 1400, after a change in the course of the river. It developed through the deposit of river sediments.
5. The river is trying to change course again. A man-made dam has been built to contain the river in its current course. Without this dam, the river would change, flowing down the Atchafalaya River, cutting off Baton Rouge and New Orleans and building its new delta to the west of the present one.

Appropriate Conclusion(s):

This is the mighty Mississippi River's delta. It is "decaying" due to human actions - river channelization, levee building, and canal cutting. This is but one of the many deltas the river has built over geologic time.



The United States has long been one of the world's leading agricultural producers. Farmers settled in the Great Plains region of our country after the Civil War (1861-1865). They discovered massive grasslands, with topsoil that was two to ten feet thick in places. Great crops of wheat were grown on the Great Plains. Much of this wheat was sold to other nations around the globe. However, in the 1930s these Great Plains farms became swirling dust bowls.

Central Question:

How did fertile farmlands become swirling dust bowls?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

How did fertile farmlands become swirling dust bowls?

Facts:

1. The average annual rainfall for this region is 15 to 25 inches, but this varies greatly. During the 193Os, the Great Plains received only 10 to 15 inches of rainfall yearly. This was a low point in a natural weather cycle.

2. The farmer/settlers had used new deep plows to cut through and turn the roots of the deep grasses which had covered the Plains. The historic grasslands were destroyed. Fence rows, hedges, and other windbreaks were not employed to protect the soils. Ground covers (plants or plantings) were not used either.

3. With the shortage of rainfall in the 193Os, the surface soil dried out, caked, and cracked. Plants died. The old grasslands' root systems were no longer present to hold these soils. When the winds came (as they always do), the winds blew up great clouds of "dust" (soils) like driving snow. Even light winds carried away soils and caused drifts, covering roadways and buildings.

Appropriate Conclusion(s):

The destruction and mismanagement of fragile grasses in dry regions led to the creation of "dust bowl" conditions as the winds carried away topsoil during especially dry points in the rainfall cycles.

In Alaska there is a valley that smokes!

Rain or shine this valley smokes, the weather does not matter. It is a valley with trees, grass, and water. People can come and go without great harm. In fact, it is a natural valley in every way except for the smoke.

Question:

Why does this valley smoke?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why does this valley smoke?

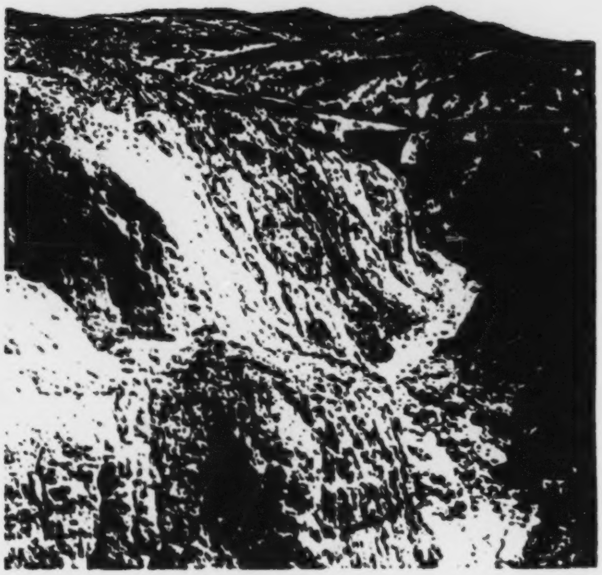
Facts:

1. The valley has been affected by plate tectonics - movement in the crust of the earth.
2. Fissures and other cracks appear in the valley.
3. The heat from friction and pressure in the movement of the earth's substructure cause steam and smoke to arise through the fissures and cracks.
4. Since this tectonic activity is decreasing in this area, the smoke and steam are not severe in their impact upon the environment - hence the "naturalness" of the valley's appearance.

Appropriate Conclusion(s):

Tectonic activity that is dying out causes steam and smoke to push up through fissures and cracks. This gives "fumaroles".

WORLD GEOGRAPHY MYSTERY



In the early nineteenth century, the land around Ducktown, Tennessee, was covered with beautiful trees. You can still see such lovely trees in the Great Smokey Mountains National Park, less than 50 miles away. Some of the species, such as hemlock and white pine, grow as tall as they do anywhere on Earth. In less than fifty years, beginning in the 1850s, the local forest around Ducktown had disappeared. Soon, only rock was left.

Central Question:

What caused the Ducktown trees to disappear?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

What caused the Ducktown trees to disappear?

Facts:

1. Beginning in the 185Os, a mining company started to work a large copper-ore deposit that had been discovered in the Ducktown area.
2. To save the cost of shipping out heavy copper ore, the company decided to refine the ore (smelting) on the spot (at the mine) and ship only pure copper ingots. Local timber was used as the fuel for smelting.
3. By itself, this would not have been bad. The trees in the Southern forest could have reseeded themselves and grown rapidly in the warm, wet climate.
4. Unfortunately, the smelting process used at the time allowed poisonous fumes to escape into the open air. In calm weather, these fumes hung around long enough to damage the health of every living thing. (Research Sudbury, Ontario, where similar mining took place into the Twentieth Century).

Appropriate Conclusion(s):

The poisonous fumes emitted from copper smelting upset the ability of forests to regenerate. With the plants gone, the topsoil washed away, leaving barren rock formations.

WORLD GEOGRAPHY MYSTERY

The Nacirema People

The focal point of the Nacirema shrine is a box or a chest which is built into the wall. In this chest are kept the many charms and magical potions without which no native believes he could live. The charm is not disposed of after it has served its purpose, but is placed in the charm box of the household shrine. We can only assume that the idea in retaining all the old magical materials is that their presence in the charm box, before which the body rituals are conducted, will in some way protect the worshiper. The daily body ritual performed by everyone includes the mouth rite. This ritual consists of inserting a small bundle of hog hairs into the mouth, along with certain magical powders, and then moving the bundles in a highly formalized series of gestures. Special women's rites are performed only four times during each month. As part of this ceremony, women bake their heads in small ovens for almost an hour. Our study of the Nacirema (in 1946) shows them to be a magic-ridden people. It is hard to understand how they have lived so long into the 20th Century.

Central Question:

Who are these Nacirema people?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Who are these Nacirema people?

Facts:

1. This "study" was written in 1946 by Horace Miner, a well-known anthropologist. His goal was to cause scholars to reflect upon the ethnocentric bias built into their perceptions of other "more primitive" peoples.

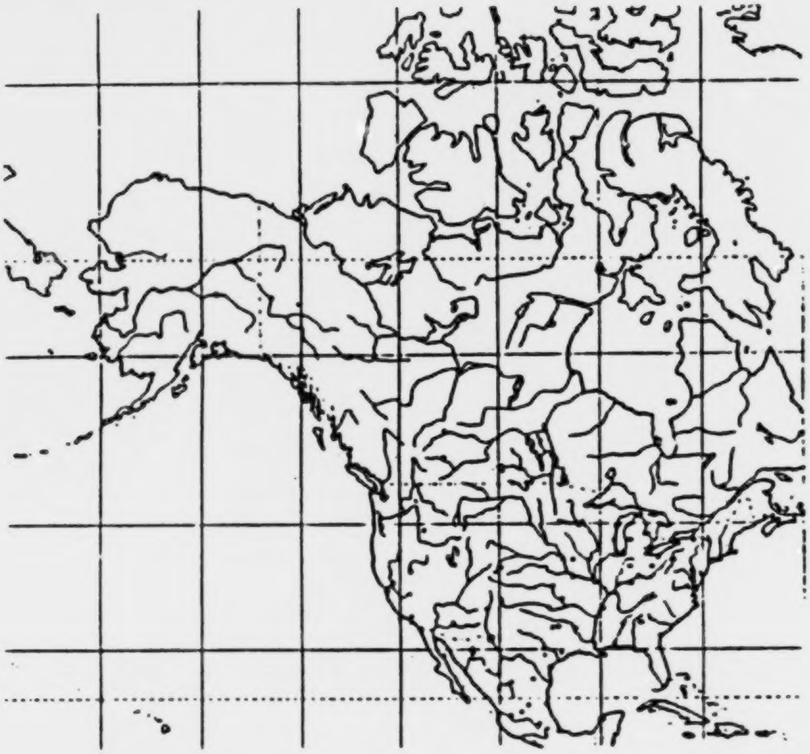
2. The box or chest which is built into the wall is the American medicine cabinet - found in each bathroom, even in houses with three and four bathrooms.

3. The hog hairs in a bundle are our toothbrush; the magical powders are toothpowders (or paste today).

4. The ovens in which women bake their heads four times a month are hair dryers. Today with dryer "guns" the oven is out....but the baking is more frequent by men as well as women.

Appropriate Conclusion(s):

The Nacirema are AMERICANS spelled backwards. The message is that it is easy to reach erroneous conclusions about others.



The average annual rainfall varies as one travels inland from the Pacific coastline of Oregon. Along the coast, the average annual rainfall is about 65 inches. At intervals of 50 to 100 miles, the average annual rainfall increases to 120 inches, decreases to between 30 and 40 inches, increases again to close to 90 inches, and then decreases to about 10 inches. Along the coast of Oregon, it is quite humid...while the eastern part of Oregon is dry.

Central Question:

Why is there such a variation in humidity and average annual rainfall over such a short distance?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

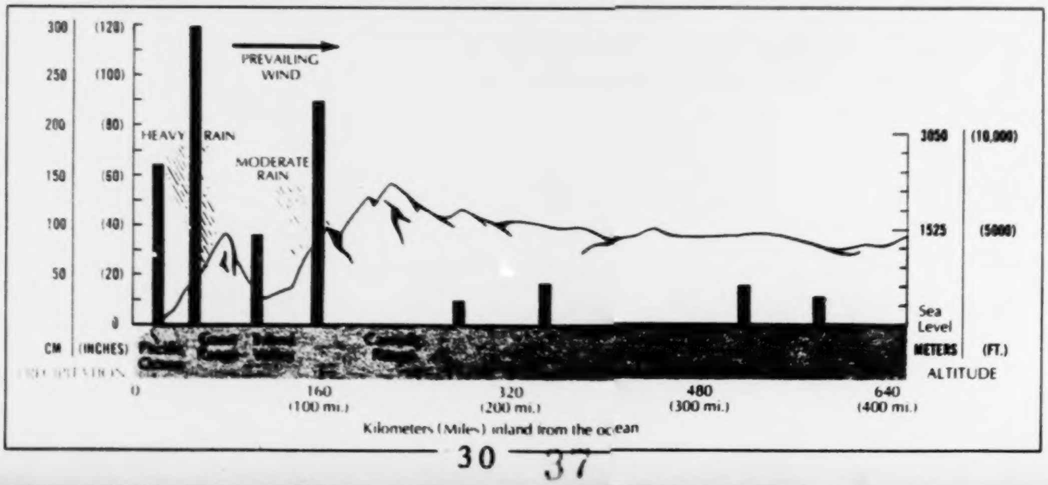
Why is there such a variation in humidity and average annual rainfall over such a short distance?

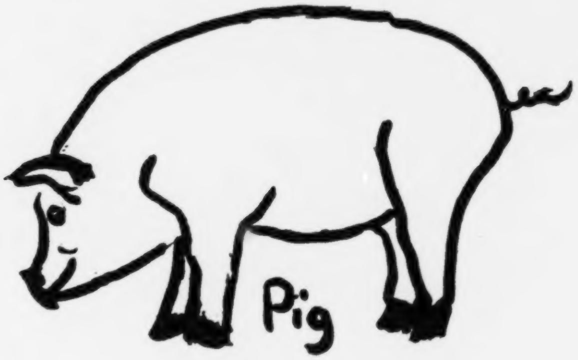
Facts:

1. The prevailing wind is from the west.
2. As air rises it cools. Cool air cannot hold as much water vapor as warm air.
3. The coast range of mountains and the Cascade Mountain range forces the prevailing winds to rise...and thus cool, dropping water vapor as rain or snow.
4. As the air descends after crossing the mountain ranges, it warms but it is without much water vapor. Thus, these mountains create a "rain shadow" on their opposite side from the prevailing winds.

Appropriate Conclusion(s):

As the air is forced over the coastal and Cascade ranges, it cools and drops its water vapor (precipitation). As it descends the eastern side of the mountains, the air gets warmer but is dry. Thus, the mountains create a "rain shadow" and such wide rainfall variations.





PIG IRON

Pig iron is one of the basic ingredients in steelmaking. Pig iron is made in a blast furnace, where temperatures range around 3000 degrees F. The blast furnace is the meeting place for three raw materials - iron ore, coke (coal), and limestone. Together they yield pig iron. Today most pig iron is used directly in the making of steel. But some is used by foundries to be cast into molds for wheels, stoves, machine parts, and other products. Before modern steelmaking, America depended upon pig iron for its industrial needs. The old blacksmith heating and pounding away...was working on pig iron.

Central Question:

Why is the iron from the blast furnace called "pig iron"?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why is the iron from the blast furnace called "pig iron"?

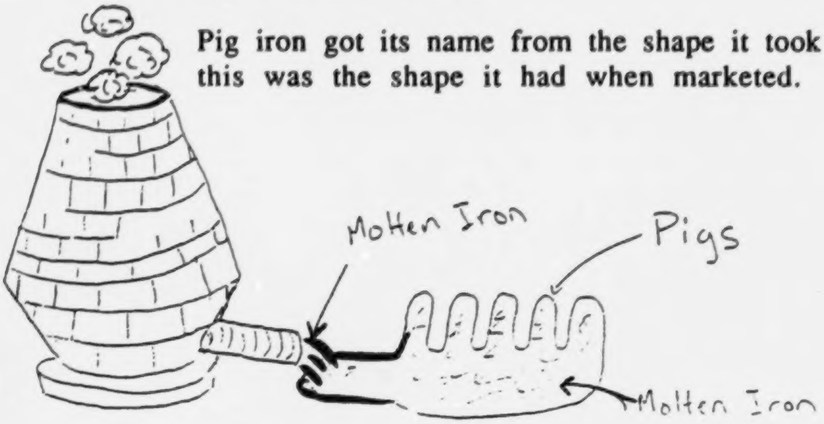
Facts:

1. In the blast furnace, molten iron collects in the bottom of the furnace and runs out into a ladle.
2. Impurities in the furnace unite with the limestone and are drawn off as slag - a waste product.
3. In earlier years, the molten iron was allowed to flow from the furnace into what were called "pig beds". A "pig bed" was a shallow bed of sand adjoining the furnace. A trough was scooped out for the molten iron to flow into a bigger trough with side runners. The hot iron flowed into this "pig bed" to cool. It was then marketed in pigs to be reheated and cast into useful products. "Pigs" were to iron what "ingots" are to steel.
4. Ironworks laborers began calling the iron cast in these sand cooling beds "pigs" - because they were pig shaped. Hence, the name "pig iron" emerged.

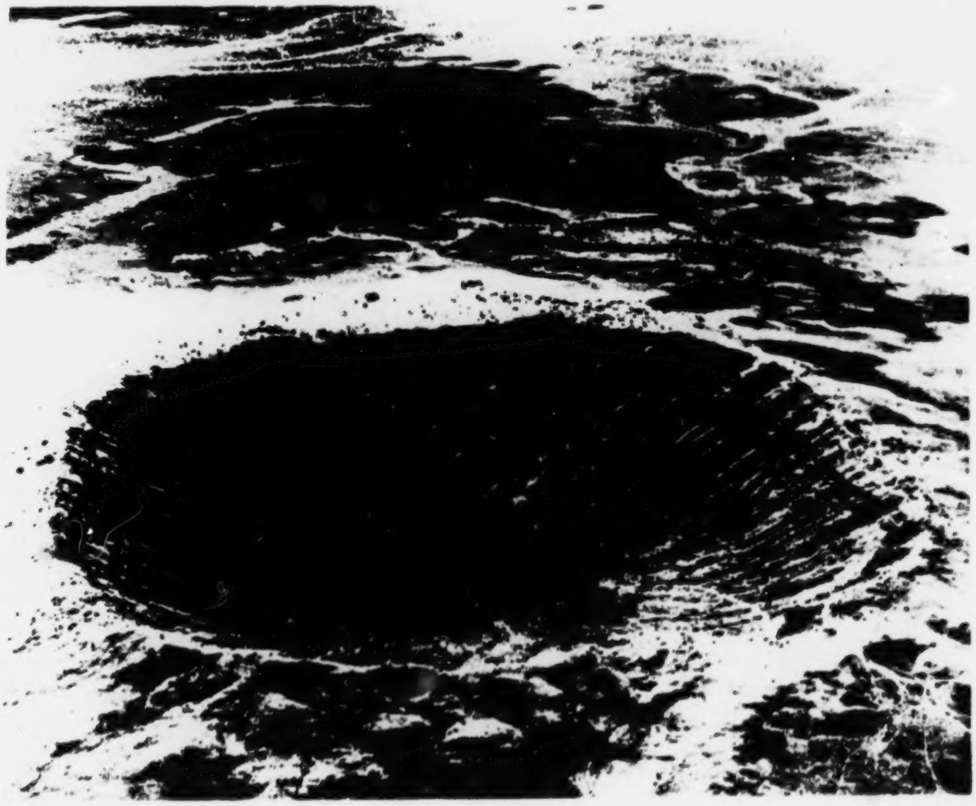
Appropriate Conclusion(s):

Pig iron got its name from the shape it took in the cooling beds, and this was the shape it had when marketed.

Andrew
Frederick
Weckerlin,
F.S.U. 1987



WORLD GEOGRAPHY MYSTERY



The surface of the earth is certainly uneven. There are high mountains and deep oceans. But what about great "holes"? Here is the Arizona Desert, there is a great depression in the earth. It is deeper than Lake Okeechobee, but not as wide.

Central Question:

What caused this great "hole" to appear near Winslow, Arizona?

Teacher Factsheet

Central Question:

What caused this great "hole" to appear near Winslow, Arizona?

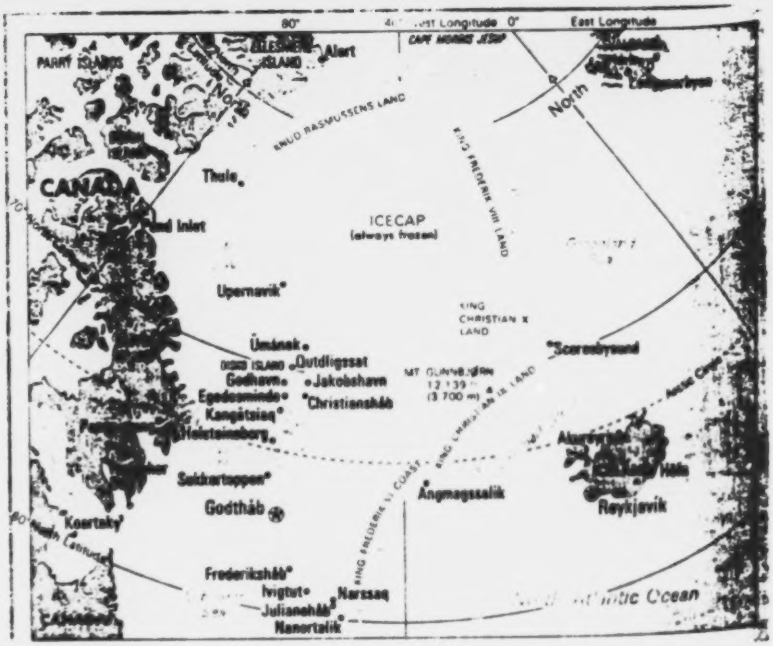
Facts:

1. The earth's surface is constantly changing.
2. The forces of change are wind and water erosion, temperature changes, glacial action, wave action, heat and pressure from within the earth, and so forth.
3. Occasionally the earth is struck by meteorites.
4. This crater at Winslow, Arizona, was produced by a pre-historic meteorite. It was only about 50 yards across...and made this great "impression".

Appropriate Conclusion(s):

A meteorite struck the earth near Winslow and made this crater (not unlike those on the moon). Meteorite action is but one minor way in which the earth's surface is constantly changing.

WORLD GEOGRAPHY MYSTERY



East Longitude
Cape Morris Jesup
Parry Islands
Alert
North
Knud Rasmussens Land
Canada
Thule
Icecap
(always frozen)
King Frederik VIII Land
Upernavik
King Christian X Land
Umanak
Disko Island
Qutdligssat
Godhavn
Jakobshavn
Egedesminde
Christianshåb
Kangâtsiaq
Holsteinsborg
Scoresbysund
Mt Gunnbjørn
Sukkertoppen
Godthåb
Angmagssalik
Reykjavik
Frederikshåb
Ivigtut
Narssaq
Julianehåb
Nanortalik
Atlantic Ocean

Greenland is one of the coldest places upon our earth! The average temperature all year round is below freezing. A permanent ice sheet covers four-fifths of the island. It is too cold for plants to grow and its population is very small. Because much of Greenland lies north of the Arctic Circle, the sun does not shine at all during the long winter months. Until very modern times, dog sleds have been the chief method of transportation.

Central Question:

Why would an island covered by ice be called "Greenland"?

Teacher Factsheet

Central Question:

Why would an island covered by ice be called "Greenland"?

Facts:

1. Norwegian Vikings are believed to have discovered what is now called "Greenland" in the tenth century.

2. The island was called "Greenland" in 984 A.D. by a Viking leader named Eric the Red.

3. The island was named "Greenland" because those who discovered and claimed ownership of the island wanted to make it sound attractive to settlers.

4. Eric the Red and his followers founded two colonies on Iceland. Colonization was attempted on Greenland at the same time. Both attempts failed.

Appropriate Conclusion(s):

The icy island was called "Greenland" as a means to attract settlers, much like real estate developers use symbolic names for their settlements today. These names, like "Greenland" often have little to do with reality.

PART THREE

LATIN AMERICAN REGION

WORLD GEOGRAPHY MYSTERY

Latin America is a regional term which includes Central America, South America, the Caribbean Sea area, and part of North America (Mexico). Persons who inhabit these areas speak mainly Spanish, French, or Portuguese. A few English-speaking countries do exist in Latin America. These languages, of course, come from the European colonizers - and today remain long after European colonies are a thing of the past. But a question remains.

Central Question:

Why is this region called Latin America? The Romans had no empire here!

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

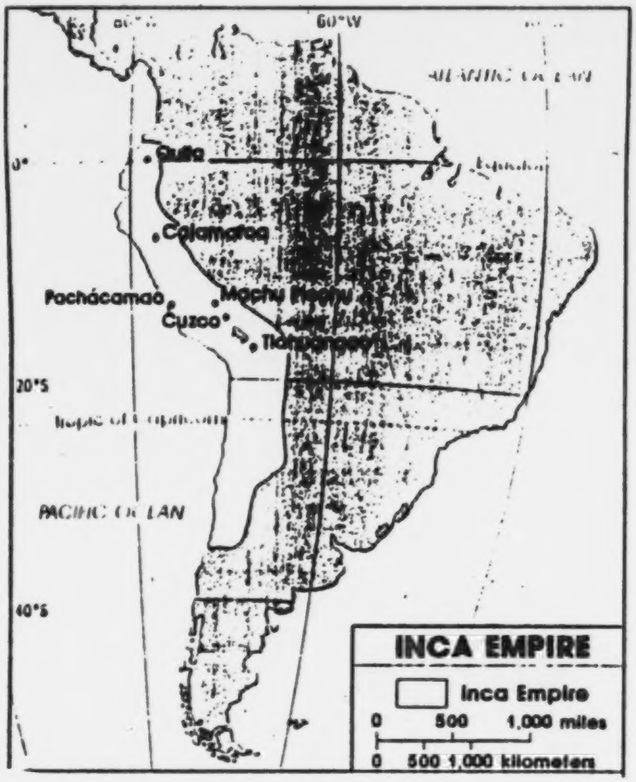
Why is this region called Latin America? The Romans had no empire here.

Facts:

1. Latin America stretches about 6,000 miles from Northern Mexico to Cape Horn.
2. The Indian populations of this region had their own languages which were displaced by the languages of European colonial powers.
3. These colonial powers brought Spanish, Portuguese, French, and some English to the region. There was no "Latin" except at a few traditional masses in the Roman Catholic Church.
4. Today, Spanish, Portuguese, and some French would be the main official languages in the nations of "Latin" America. Several nations use English.
5. Spanish, Portuguese, French and Romania are romance languages linked to Latin/ Mediterranean roots used by the Romans.

Appropriate Conclusion(s):

The common language tradition is in the Mediterranean/Latin tradition, and hence the label "Latin America" - reflecting this unity of language over the entire region.


60°W
ATLANTIC OCEAN
Equator
0°
Quito
Cajamarca
Pachácamac
Machu Picchu
Cuzco
Tiahuanaco
20°S
Tropic of Capricorn
PACIFIC OCEAN
40°S
INCA EMPIRE
Inca Empire
0 500 1,000 miles
0 500 1,000 kilometers

After 1200 A.D. the Inca came upon this scene on the coast of Peru. They created a vast empire, stretching over the reign of 13 e[illegible]rs, before being conquered by the Spanish.

The lands of the Inca were linked by a fine system of roads, crossing up and down the steepest hills and mountain sides.

Central Question:

Why did the Inca roads have steps as they went up and down hills and mountains?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why did the Inca roads have steps as they went up and down hills and mountains?

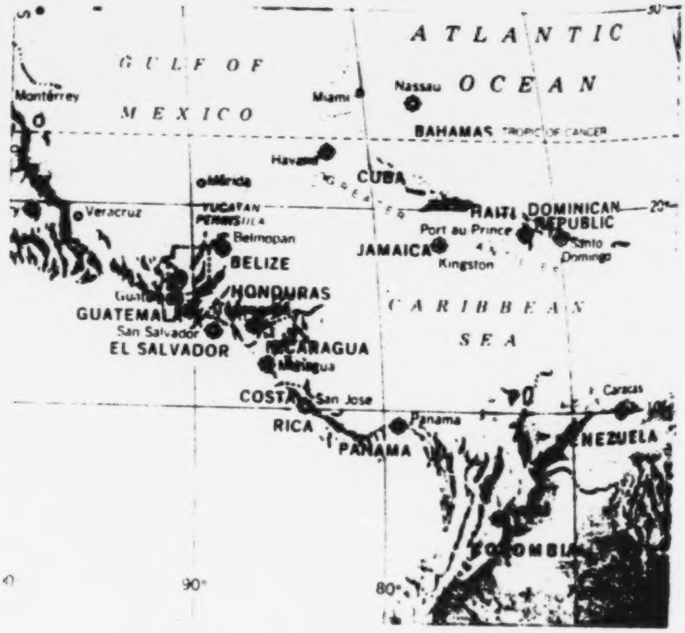
Facts:

1. The Inca built roads all across their empire linking Cuzco, the capital, to all parts of the empire. Suspension bridges were built over small canyons. Hillside terraces were used to support roadways.
2. The Inca used runners as government and military messengers. The Inca armies were large in order to support the war policies of the government. Storehouses of food were maintained along the roadways to supply their armies when on the move.
3. The Inca forced many conquered peoples to move in order to control them better. The roads were used for this migration. Often, these people had to build roads into their forced settlement area.
4. The Inca moved people and goods on the roads, as well as messages and armies. They used pack animals, but not wheeled vehicles. The Inca did not know about the use of wheels.
5. At its maximum, the empire extended from the present Columbia-Ecuador border to central Chili - 2,500 miles.

Appropriate Conclusion(s):

The Inca did not have the wheel. Carts, wagons, and other wheeled vehicles would have been blocked by steps. But stepped roads were easier to build and maintain, and they were easy for pack animals and people to use to go up and down steep slopes.

WORLD GEOGRAPHY MYSTERY


ATLANTIC OCEAN
GULF OF MEXICO
Monterrey
Miami
Nassau
BAHAMAS
TROPIC OF CANCER
Havana
CUBA
Mérida
YUCATAN PENINSULA
Veracruz
Belmopan
BELIZE
HAITI
DOMINICAN REPUBLIC
Port au Prince
Santo Domingo
JAMAICA
Kingston
HONDURAS
GUATEMALA
San Salvador
EL SALVADOR
NICARAGUA
Managua
CARIBBEAN SEA
COSTA RICA
San Jose
Panama
PANAMA
Caracas
VENEZUELA
COLOMBIA
90°
80°
30°
20°

Emeralds are very valuable jewels, prized by many people. They are mined in Columbia and some other nations. But the finest emerald are today found in the waters off the coasts of Cuba and Florida.

Central Question:

Why are these finest and largest emeralds coming from coastal waters off Cuba and Florida today?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

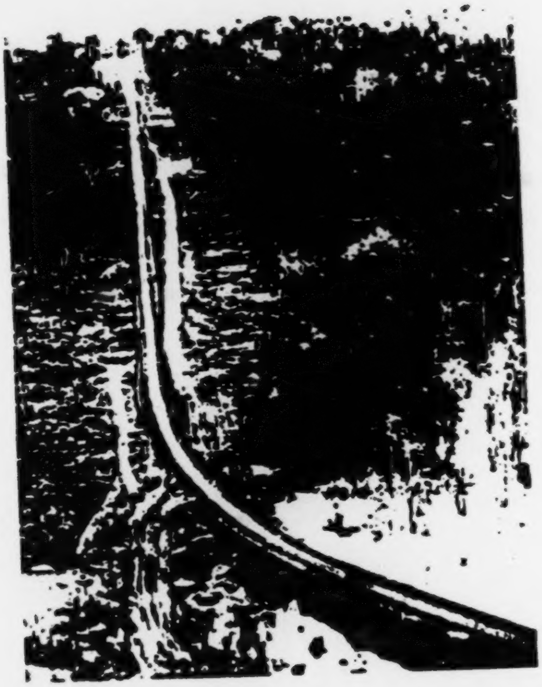
Why are these finest and largest emeralds coming from coastal waters off Cuba and Florida today?

Facts:

1. The finest known emerald mines come from high altitudes in the nation of Colombia.
2. It is believed the emeralds of this quality have not been mined for 200-300 years.
3. Emeralds were mined for their beauty and powers of clairvoyance.
4. Divers believe it will take 2-4 years to find and bring up all the emeralds that might still be off the coastal waters of Cuba and Florida.

Appropriate Conclusion(s):

Great armadas of Spanish ships sailed constantly from Latin America to Spain during the sixteenth and seventeenth century carrying goods from New Spain. Ships were often sunk during the hurricane season and many of the wrecks are just now being discovered.



The Europeans who came to the New World thought that the Amazon was inhabited by giant female warriors. They were wrong. But it is the world's largest forested area. Ninety percent is rain forest. Three-fifths of Brazil is in this great Amazon River basin. Until quite recently, the Amazon was sparsely populated. But now waves of new settlers are pouring into the Amazon River basin, carving out farms and ranches or opening new businesses.

Central Question:

Why is this vast region attracting business and settlers in such great numbers?

Teacher Factsheet

Central Question:

Why is this vast region attracting business and settlers in such numbers?

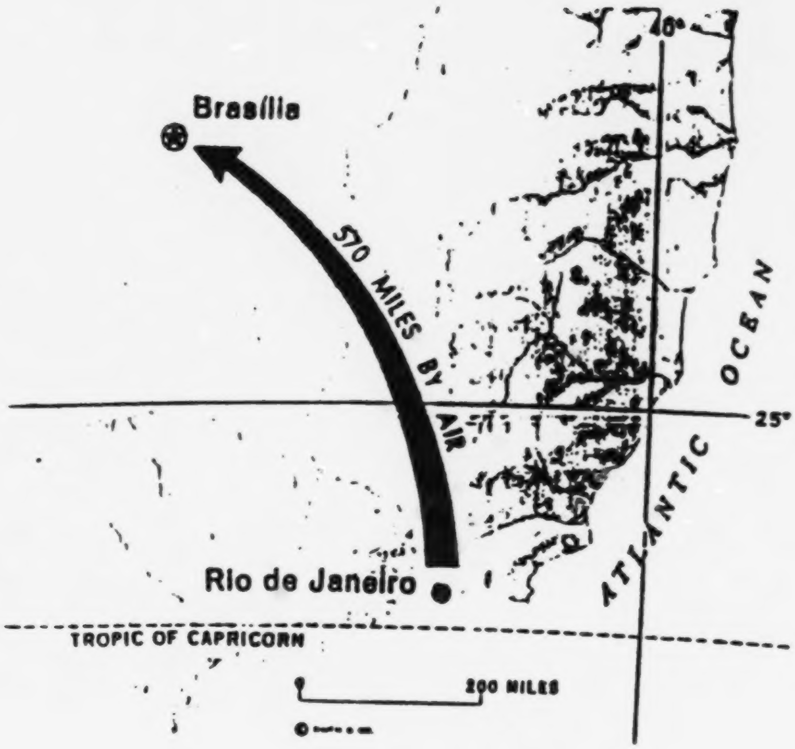
Facts:

1. The Amazon River Basin is 90% rain forest. While parts are flood plains which are seasonally flooded, most is uplands, unflooded plains.
2. This region is home to more bird and plant species than any other region in the world. It has a unique ecology. The soils are poor and ecologists fear that once destroyed the rain forest vegetation will never be able to replace itself. Conventional farm crops can only be grown with massive applications of commercial fertilizers, and erosion is a constant problem.
3. Brazil as a developing Third World nation had pressing needs. It was interested in promoting cattle raising, farming, hydro-electric development, and the resettlement of the poor into this Amazon region.
4. The Trans-Amazon Highway was constructed, and this new transportation route attracted and funneled industrial development and settlers into the Amazon basin. The government built the highway and cleared lands to get the poor from the drought-strickened Northeastern Brazil to colonize the Amazon. It was a political safety valve.
5. The first lands cleared were poor ones for traditional crops, so the settlers (farmers) pushed deeper into the forest squatting on the lands of native peoples in the Amazon.

Appropriate Conclusion(s):

The building of the Trans-Amazon Highway was the signal and stimulus for massive intrusions into the Amazon causing deforestation, ecological destruction, and disruption of native peoples - while providing for the needs of both the Brazilian economy and the poor in its northeastern section.

WORLD GEOGRAPHY MYSTERY


Brasília
570 MILES BY AIR
Rio de Janeiro
40°
25°
ATLANTIC OCEAN
TROPIC OF CAPRICORN
200 MILES

In 1960 the capital city of Brazil was moved from Rio de Janeiro to a new city named "Brasilia". This new capital city was located 600 miles (970 kilometers) from the coastline. It was in the Brazilian Highlands, with no roads or railroads leading to other cities.

Central Question:

Why did the government of Brazil relocate the capital to such a remote place?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why did the government of Brazil relocate the capital city to such a remote place?

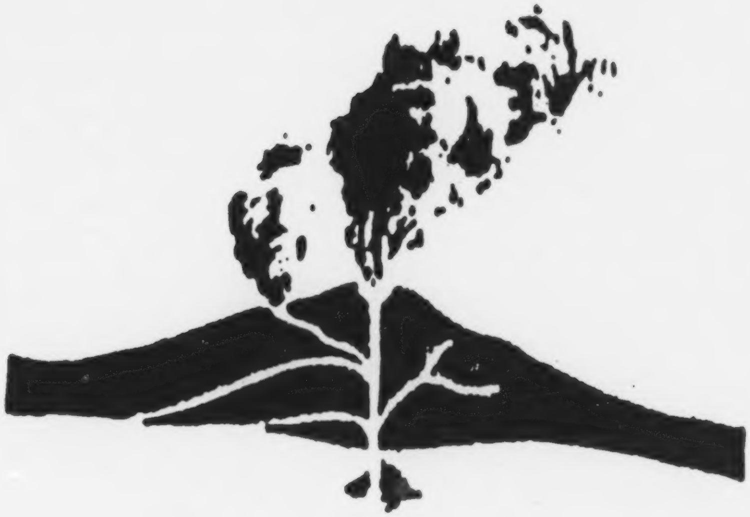
Facts:

1. Brazil is a nation with rich resources, which are underdeveloped.
2. Most of Brazil's population was concentrated in a few urban areas and rich farming places. The urban areas were attracting more and more people, creating major urban problems.
3. The government wanted to attract people into other regions, in order to ease the problems in the cities and to develop the resources in more remote regions.

Appropriate Conclusion(s):

The government relocated the capital city (to a new city - Brasilia) in order to develop a new region, and to ease the problems in existing, coastal urban regions.

WORLD GEOGRAPHY MYSTERY



Many of the Caribbean Islands and much of Central America contain active volcanoes. Izako in San Salvador and lrazu in Costa Rica are two examples. Thousands of people live on the slopes of these volcanoes. Many cities are found nearby.

Central Question:

Why would people want to live near an active volcano?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

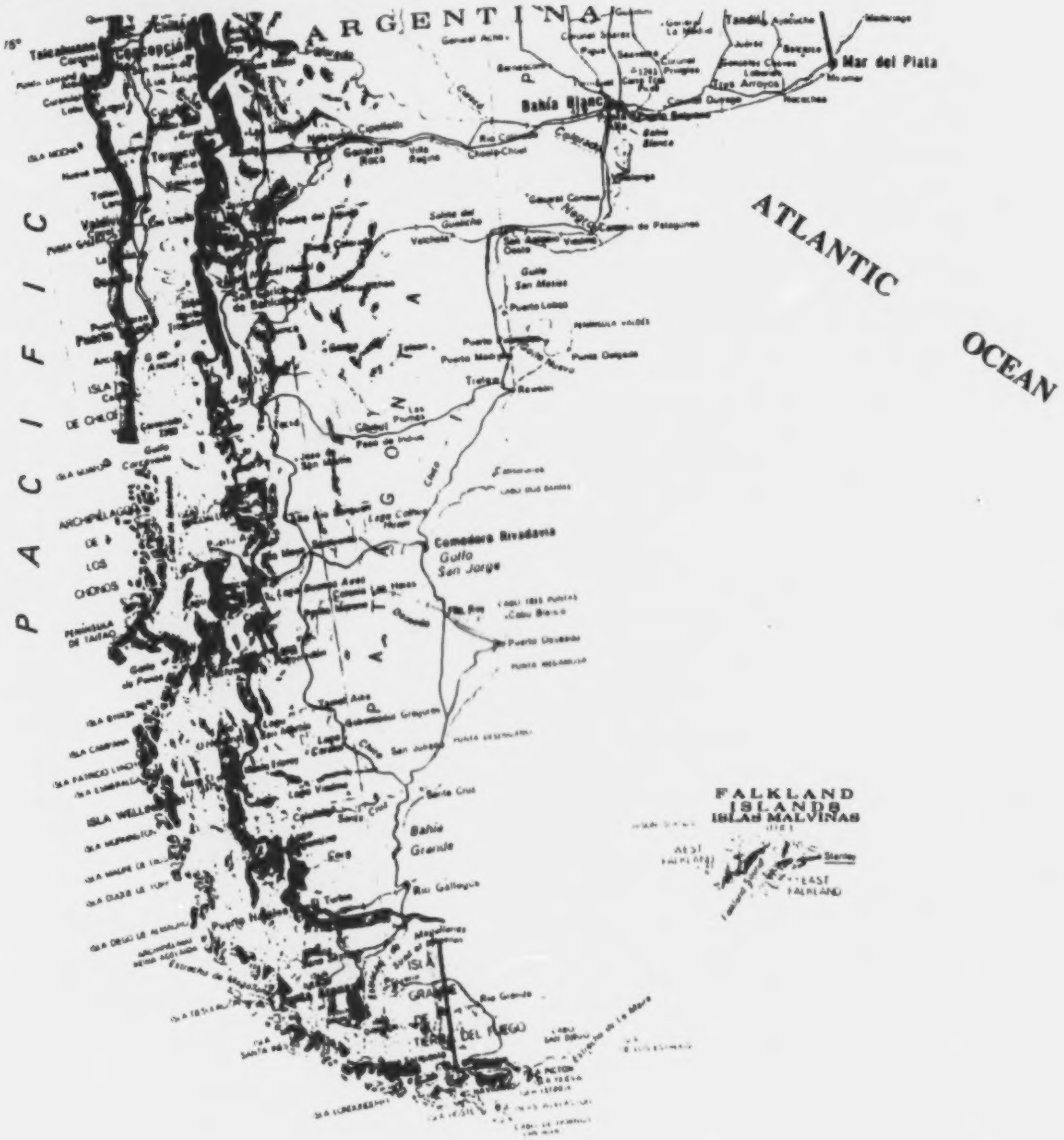
Why would people want to live near an active volcano?

Facts:

1. When a volcano erupts it emits ash and lava.
2. Volcanic ash contains minerals. It is rich in iron, calcium, magnesium and potassium.
3. Some of the essential elements for plant growth are calcium, magnesium and potassium.

Appropriate Conclusion(s):

Volcanic ash makes soil fertile because it adds essential minerals to the soil. Land near volcanoes is rich land that is excellent for farming.


ARGENTINA
ATLANTIC OCEAN
PACIFIC
PATAGONIA
Mar del Plata
Bahía Blanca
Valdivia
ISLA DE CHILOE
ARCHIPIELAGO DE LOS CHONOS
PENINSULA DE TAITAO
ISLA WELLINGTON
Golfo San Matías
Golfo San Jorge
Comodoro Rivadavia
Puerto Deseado
Santa Cruz
Bahía Grande
Río Gallegos
ISLA GRANDE DE TIERRA DEL FUEGO
FALKLAND ISLANDS
ISLAS MALVINAS
WEST FALKLAND
EAST FALKLAND

Tierra del Fuego is a group of islands at the southern most point in South America. Tierra del Fuego means "Land of Fire" in Spanish.

Central Question:

Why is Tierra del Fuego called by this name - Land of Fire?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why is Tierra del Fuego called by this name - Land of Fire?

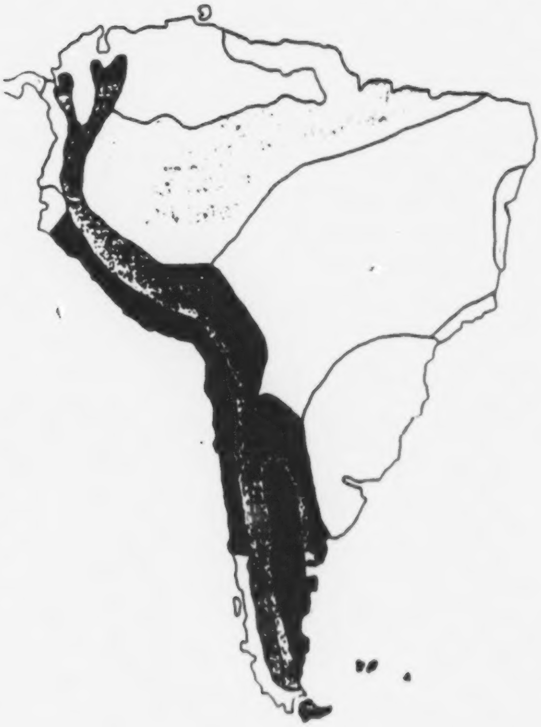
Facts:

1. Tierra del Fuego is a group of islands forming the southernmost tip of South America. One large island, the Isla Grande de Tierra del Fuego, has two-thirds of the total land area of the archipelago.
2. The climate is cold and windy, the land is mountainous. Rainfall on the windward side is up to 200 inches per year.
3. The area was discovered by Ferdinand Magellan when he was on his circumnavigation of the globe. The year was 1520. He sailed the strait named in his honor. He named the region "the land of fire" -Tierra del Fuego.
4. Magellan saw the inhabitants of the islands carrying fire in the evening from one hearth to another - to keep warm.

Appropriate Conclusion(s):

In 1520 Magellan gave the archipelago its name after seeing inhabitants carry fire at dusk from one fireplace to another in order to keep warm in this soggy and cold region. From his ships the sight of these moving lights (or fires) must have impressed him.

WORLD GEOGRAPHY MYSTERY



There is a strange thing about the climate of South America. The great desert north of the Tropic of Capricorn in South America lies west of the Andes Mountains. The great desert south of the Tropic of Capricorn lies east of the Andes Mountains.

Central Question:

How do you explain the location of these two desert areas on either side of the high Andes?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

How do you explain the location of these two desert areas on either side of the high Andes?

Facts:

1 There is a coastal desert from the Ecuador/Peru border mouth to a point about one-third the length of Chile. This is on the western side of the Andes. The winds at these latitudes often come from the east. These winds blow over the humid Amazon, but they rise against the high Andes. As they rise, the winds are chilled and drop their moisture as heavy rainfall. After crossing the Andes, the winds are dry, and thus do not produce rainfall. The Andes shields the western side from rainfall.

2. On the Pacific side, the winds are often from the south or southwest. They pick up little moisture to drop as rainfall on the coastal area.

3. The desert south of the Tropic of Capricorn lies east of the Andes in Argentina. At this latitude the prevailing winds come from the west or northwest. They pick up moisture, but drop it as rainfall when they cross the high Andes. The coastline gets ample rain, but the eastern side gets dry winds coming over the mountains. The Andes shields this eastern side (in Argentina) from rainfall. (This is called a "rain shadow".)

Appropriate Conclusion(s):

The deserts are explained by the prevailing winds and the high Andes which creates "rain shadows" - the deserts being located in the rain shadows of the mountains set against the prevailing winds (the lee side, to use a sailor's term).

Sitting around the coffee table, the men and women are talking about their travels on our globe. Each has visited many places. They tell story after story...and then, someone mentions THE RING OF FIRE. Our earth, it seems, has a RING OF FIRE.

Central Question:

What is the RING OF FIRE?

WORLD GEOGRAPHY MYSTERY

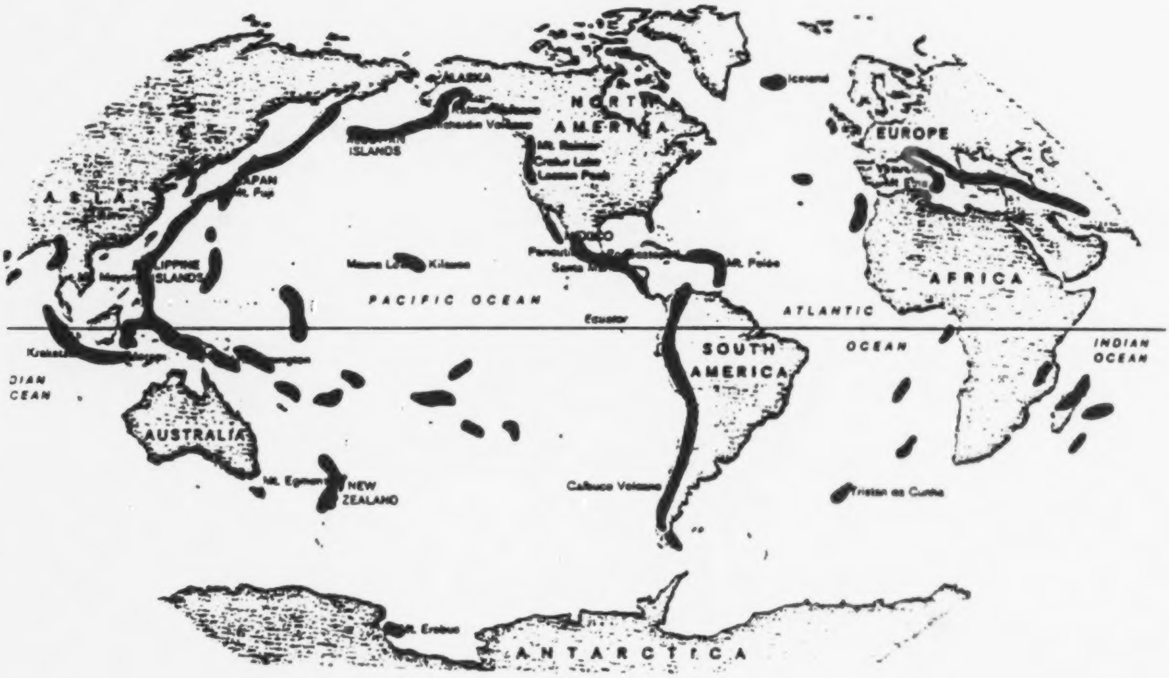
Teacher Factsheet

Central Question:

What is the RING OF FIRE?

Facts:

See the map blow (Book of Knowledge, p. 385).


ASIA
JAPAN
Mt. Fuji
ALASKA
ISLANDS
NORTH AMERICA
Mt. Rainier
Crater Lake
Lassen Peak
Iceland
EUROPE
Mt. Pelée
Kilauea
PACIFIC OCEAN
Equator
ATLANTIC
OCEAN
AFRICA
INDIAN OCEAN
SOUTH AMERICA
Krakatoa
AUSTRALIA
Mt. Egmont
NEW ZEALAND
Calbuco Volcano
Tristan da Cunha
Mt. Erebus
ANTARCTICA

Appropriate Conclusion:

The RING OF FIRE is the ring of volcanoes (or past and present volcanic activity) around our globe.

WORLD GEOGRAPHY MYSTERY

MASTIC TREE
Mastichodendron foetidissimum (Jacq.)
SAPOTACEAE

The sapodilla tree is grown throughout Central America. This tree produces a useful fruit which is consumed by Central Americans. The tree, when cut, yields a natural latex - a rubber- which is very valuable. Workers cut the trees carefully, and then collect the valuable latex.

Central Question:

Years ago an American company invented the Chiclet. It was a sugar-coated piece of chewing gum. Why did they select the name "Chiclet" for their chewing gum?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Years ago, an American company invented the Chicklet. It was a sugar-coated piece of chewing gum? Why did the company select the name "Chiclet" for its chewing gum?

Facts:

1. Chicle is the natural gum, or latex, obtained from the sapodilla tree. Chicle was an important ingredient in the chewing gum. It was blended with other gums then flavors were added along with sweeteners.
2. Most commercial Chicle came from the Yucatan Peninsula area- Mexico, Guatemala, and Belize (British Honduras).
3. Chicle was introduced to the United states about 1890, as a substitute for natural rubber. It was important in large quantities as an ingredient in the manufacture of chewing gum.
4. A worker who cut the reeds and collected the gum or lates was a "chiclero". The word "Chiclet" in Spanish means " small pieces of gum".

Appropriate conclusion(s):

The company simply used the Spanish term for what it was producing - small pieces of gum - Chicle gum from Central America.

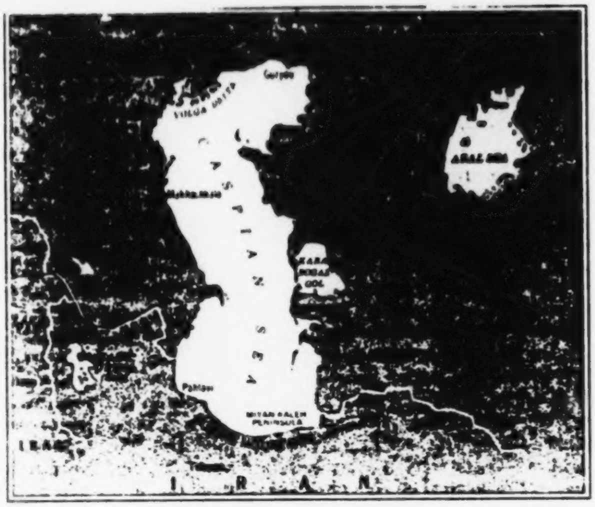
Note: Today natural chicle is rarely used. Human-produced latex gums are used in our chewing gums - along with artificial sweeteners.

PART FOUR

ASIA

(South Asia, Southeast Asia, and East Asia Regions)

WORLD GEOGRAPHY MYSTERY


VOLGA DELTA
CASPIAN SEA
KARA BOGAZ GOL
ARAL SEA
IRAN

The Caspian Sea is said to be the world's largest inland lake. The Caspian Sea is located between Europe and Asia. Iran touches its southern shore, but the Caspian Sea is in the Soviet Union. The interesting thing about this sea is that all the rivers flow into it. No river flows out of this land-locked sea.

Central Question:

What happens to all the water which flows into the Caspian Sea....but cannot flow out?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

What happens to all the water which flows into the Caspian Sea...but cannot flow out?

Facts:

1. The Caspian Sea is the largest inland salt lake in the world. It is located between Asia and Europe, mostly in the Soviet Union.

2. All the rivers feed the lake - that is, flow into it. None flow from the lake, conveying water out of the lake.

3. The Caspian Sea is located in a great depression in the earth - the Aralo-Caspian Depression (see the Aral Sea). It has a huge watershed, or drainage region.

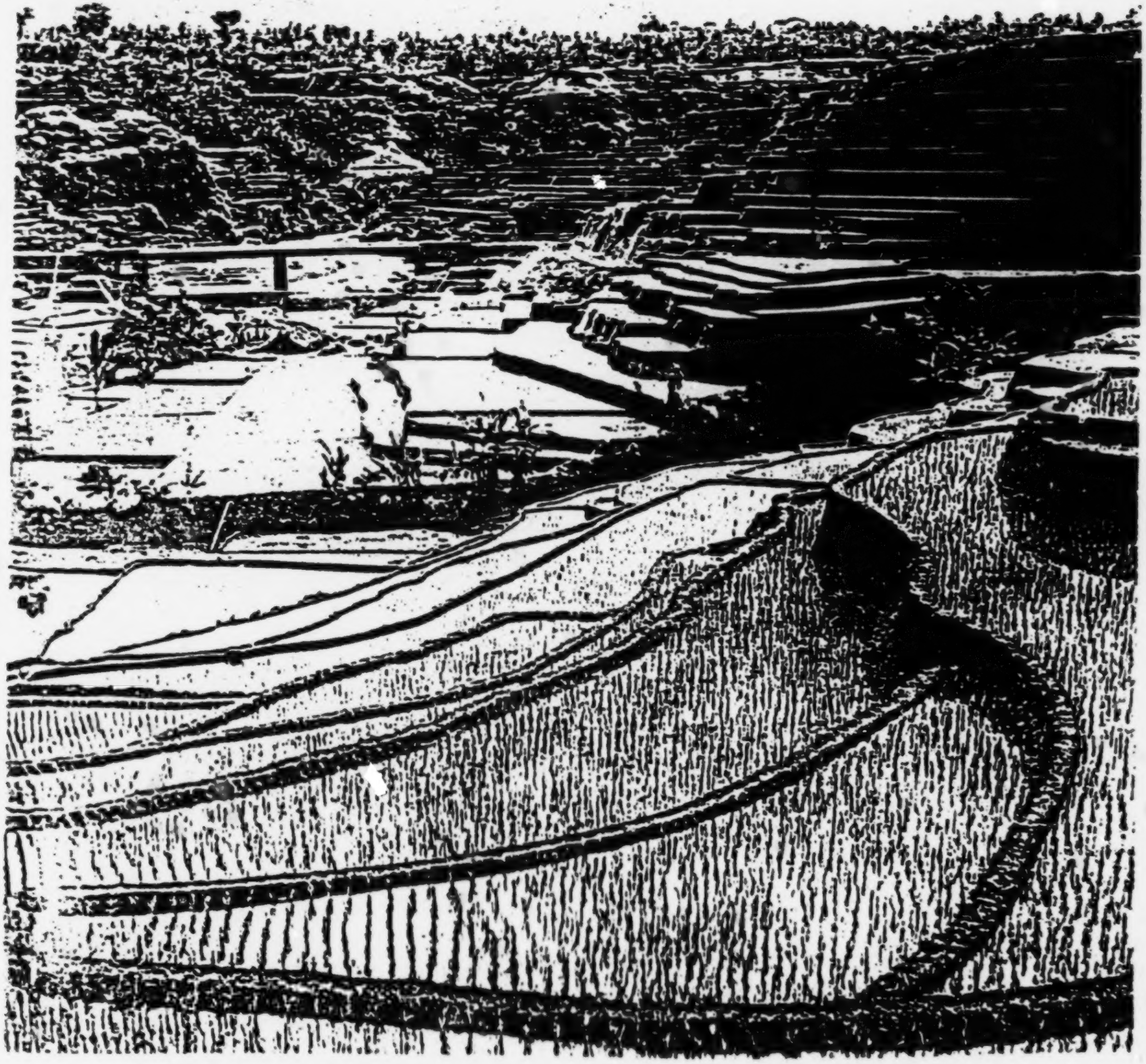
4. The depression does not "fill up" or "overflow" the boundaries of the Caspian Sea due to extensive evaporation. Having such a massive surface, there is extensive evaporation from the sea's surface in this dry climate region.

5. The Caspian Sea is very salty, since the fresh water evaporates, leaving the salts and other minerals behind. These salts and other minerals enter the lake constantly from the river water flowing off the land and down into the Caspian Sea.

Appropriate Conclusion(s):

The excess water leaves the Caspian Sea, not from out-flowing rivers, but by evaporation for its vast surface which is exposed to a dry climate.

WORLD GEOGRAPHY MYSTERY



Generation after generation of workers in Bali, Indonesia, have built the earth in this pattern. It is interesting to look at - almost an artistic design. But why go to all of this toil and trouble?

Central Question:

Why was the landscape rebuilt in this way?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why was the landscape rebuilt in this way?

Facts:

1. The built up land surface on the hill sides are called terraces. Materials are used to build "walls" on the hillsides. Then, the space behind the walls is filled with topsoils.
2. These terraces were built with manual (hand) labor, by the Balinese people. This took tremendous effort and remarkable skill.
3. Bali is a mountainous island with little level farmland.
4. Bali is heavily populated, so farmland to feed the population is at a premium. The price of land is high, so the investment in terracing is rewarded.
5. Bali's main agricultural product is rice. Rice is the staple of the Balinese diet. Rice is farmed intensively.
6. They grow lowland, wet rice. It requires plenty of rainfall and/or irrigation. Bali has the rainfall and these terraces control the water on the rice fields (or paddies).
7. This rice is grown in two to six inches of water, which is lowered as the rice crop matures. The rice is harvested on dry fields, with the water drained completely. These terraces allow this water management.

Appropriate Conclusion(s):

The landscape reflects intensive capital investment in farmland, which is used in turn for intensive rice farming - wet lowland rice.

Tab Sassee, F.S.U. 1986

World View, p. 381/375

WORLD GEOGRAPHY MYSTERY

On a field trip in Malaysia, students look out the window and see workers using a large high pressure hose that shoots water. They are shooting the water into a gigantic hole in the earth. This action moves the earth - creating a massive amount of mud.

Central Question:

Why is the earth being moved with water from huge hoses?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why is the earth being moved with water from huge water hoses?

Facts:

1. In many parts of the world, minerals are mined by using water hoses (high-pressure) to remove the overburden. These minerals must be close to the surface in order to remove the overburden in this manner.

2. Some minerals (e.g., tin, phosphate) are mined in parts of the world using high-pressure water hoses (hydraulic mining) to wash the minerals out of the earth. The minerals are, of course, mixed with sands and clays. The slurry (water, minerals, sand and clays) is then treated to separate the sands and clays from the minerals. Then the water is removed...and the minerals are ready for processing.

3. Hydraulic mining is destructive of the environment and uses vast amounts of fresh water. Careful mining operations take care to recycle the water, safely handle the clays and other wastes, and then reclaim the lands for commercial or natural uses.

Appropriate Conclusion(s):

The students saw hydraulic mining in operation. In Malaysia, the mine was probably seeking tin.

WORLD GEOGRAPHY MYSTERY

In society on the Tibetan Plateau it is customary for brothers in a family to marry one wife -- together that is. Of course, in most societies, each brother would marry his own wife. But the custom is different among many Tibetan Plateau peoples.

Central Question:

Why did the practice of brothers marrying one wife develop among Tibetan Plateau peoples?

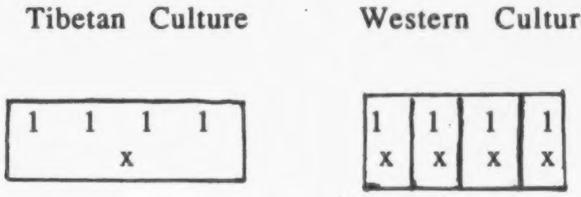
WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why was the practice of a family of brothers marrying a single woman practiced in the Tibetan Plateau and still practiced today?

1 = brothers
x = wife



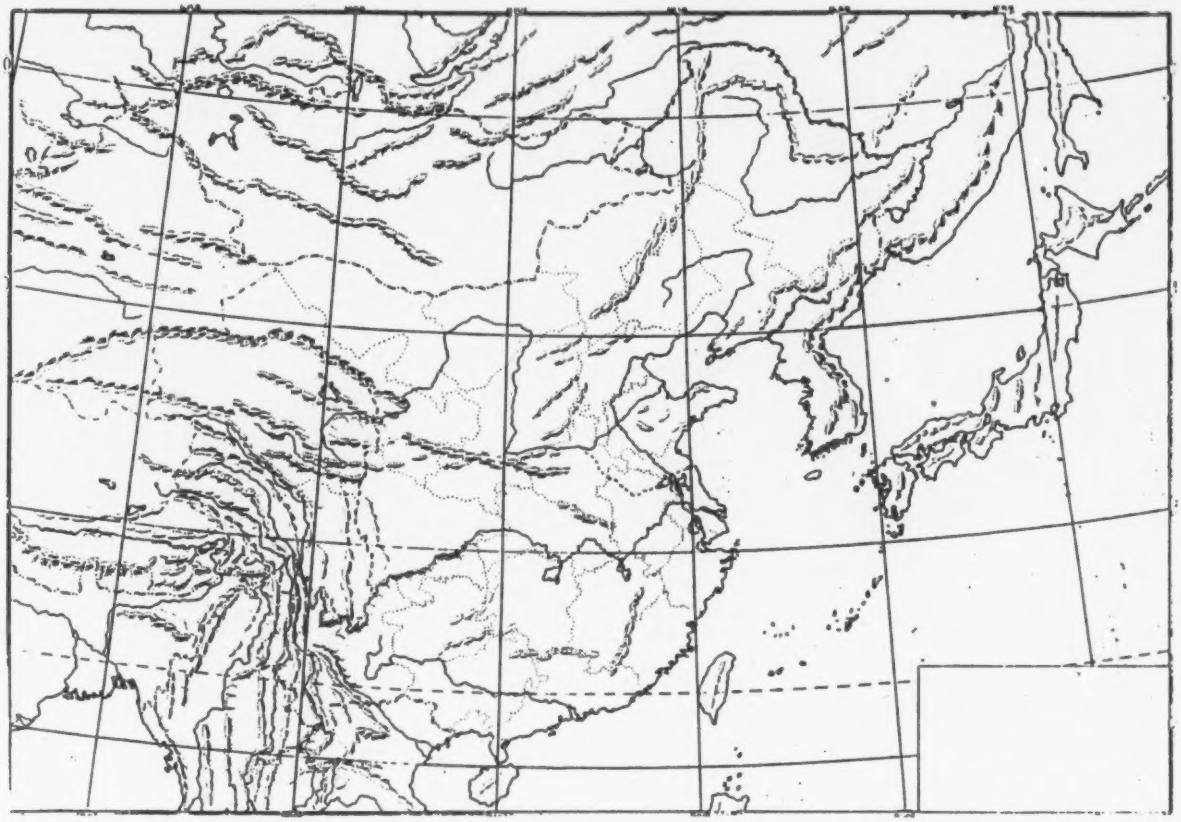
Facts:

1. This is an agrarian society.
2. Research in this area finds no shortage of women.
3. There seems to be no social stigma attached to this practice.
4. The method of farming is terracing.
5. Young men are free to break from the arrangement at any time.

Appropriate Conclusion(s):

Being located on an enormous plateau, arable land is scarce. This cultural trait is dictated by a family's desire to keep all the land together. It is easier to work the land under these conditions. All the brothers have the responsibility of the single unit rather than each (brother) getting a separate inheritance as is the custom in the Western World.

WORLD GEOGRAPHY MYSTERY



The people of China call themselves "the people of the Middle Kingdom" and the "flowery people". They consider themselves the "men of Han" or the "men of T'ang" in recognition of their pride in the early Han and T'ang Dynasties.

The Chinese do not think of themselves as "Chinese" nor of their land as "China".

Central Question:

Why do others call the land "China" and the people "Chinese"?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why do others call the land "CHINA" and the people "CHINESE"?

Facts:

1. The area of "China" has a long history of human settlement.

2. The central core of what we call "China" was first unified under a strong central government with the Ch'in Dynasty (221-206 B.C.).

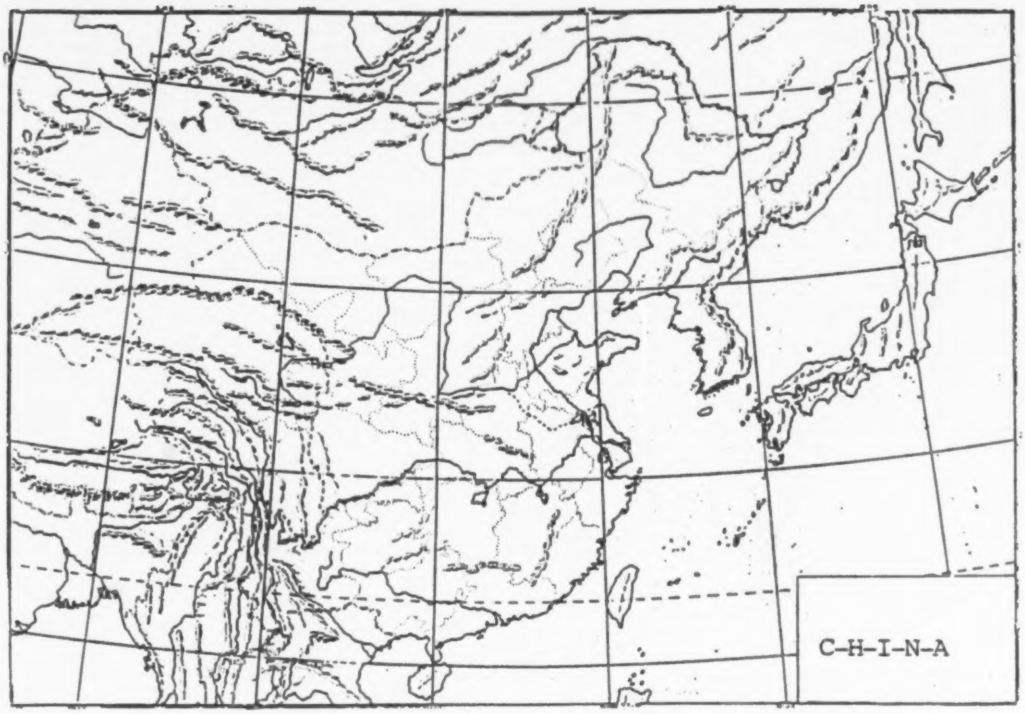
3. While the Ch'in Dynasty was short lived, it was powerful and despotic. The "Chinese" are not proud of it and its accomplishments; in fact, "Ch'in" is a term they use as a label for repressive, authoritarian political ideas and systems.

4. The Ch'in had, however, existed for a long time (since the 9th century B.C.) as an independent kingdom in the west, before its rise to imperial importance and its unification of power.

5. Central Asian peoples knew the Ch'in and they knew of a great civilization to the east. They first used the label "Ch'in" for this powerful and great civilization. As these Central Asian peoples moved westward and/or came into contact with the peoples of the West, they told stories using the "Ch'in" label.

Appropriate Conclusion(s):

The Central Asians (and then others on the outside) came to use the label "Ch'in" - CHINA for the land and civilization of the "Chin" and CHINESE for the people of this "Ch'in" civilization.



The Huang He River is one of the great rivers of China. It runs through the core of traditional China - the places where Chinese civilization originated.

While the Huang He River brought life giving water to the field of north central China, it often flooded. It was called "China's great sorrow". But the river was also called the YELLOW RIVER.

Central Question:

Why was the Huang He River called the YELLOW RIVER?

Teacher Factsheet

Central Question:

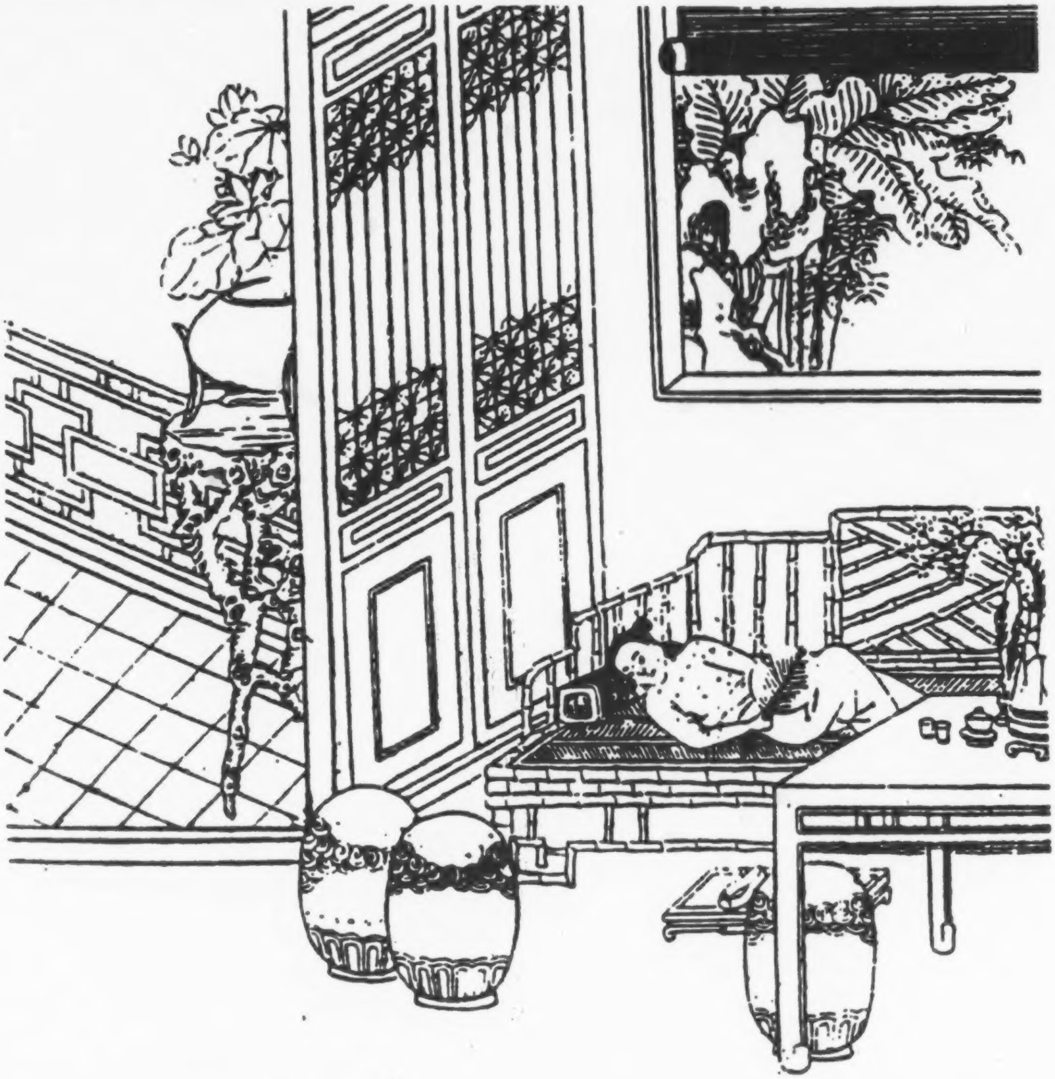
Why was the Huang He River called the YELLOW RIVER?

Facts:

1. The Huang He is the second largest river in China.
2. Extensive areas of Asia, including China, are covered by deep loess soils - wind deposited soils.
3. The Huang He originates in Qinghai and flows a twisted path to the sea over very thick, rich deposits of loess soil. The waters erode these soils and carry them down river.
4. The Huang He looks "muddy" with these yellowish loess soils and the river banks are lined with loess soil deposits. In addition, the Huang He near the Yellow Sea had deposited massive amounts of loess sediments from its many floods.

Appropriate Conclusion(s):

The Huang He River has been called the YELLOW RIVER due to its yellowish appearance from the loess soil sediments it carries.



This is a picture of a Chinese man named Wu Mang. Wu Mang is staying with his parents. Although Wu Mang could have closed the blinds and worn protective clothing, he instead chose not to wear a pajama top while sleeping and let mosquitos bite him.

Central Question:

Why would Wu Mang sleep without a pajama top and let mosquitos bite him while he slept?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why would Wu Mang sleep without a pajama top and let mosquitoes bite him while he slept?

Facts:

1. The ancient Chinese philosopher and teacher Confucius claimed that "civilization commenced with filial piety". "Filial piety" was respect for the obligation to parents.

2. The Confucian teachings were the basis for all social and political relations in ancient Chinese civilization - based upon "li" - or right relationships. People were expected to live up to their obligations (fulfilling "li").

3. These relationships (or "li") were based upon gratitude....the son to the father who gave him life. The member to the family....the family to the clan....the clan to the local political authorities....and the local authorities to the emperor. This was a system of hierarchical relationships, uniting the whole of China.

4. The son, we might expect, was acting out "li" - right relationships in his behavior.

Appropriate Conclusion(s):

The son did not protect himself from the mosquitoes, which he could easily have accomplished. He attracted mosquitoes to himself...and away from his parents...to protect them from the discomfort of mosquito bites. Thus, he was showing respect for and gratitude to his parents.

--Andrew
Weckherlin,
F.S.U.

WORLD GEOGRAPHY MYSTERY

THE MYSTERIOUS HUANG HE: The Huang He (huang' he') or Yellow River is one of the longest of China's most important rivers. The Huang He flows through China's arid upland country for three quarters of its 2,900 mile length. This huge river travels north, east, south, and northeast before emptying into the Gulf of Po Hai (bo hi). Although this river is very important to China it is often called "China's Sorrow". Traveling along the Yellow River one might come along places where the dikes along the river are sometimes 30 feet above the surrounding land and the riverbed itself some 25 feet above that same level.

Central Question:

How did the riverbed of the mighty Huang He get to be 25 feet above the surrounding land in some places along the river?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

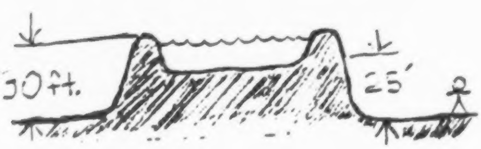
How did the riverbed of the mighty Huang He get to be 25 feet above the surrounding land in some places along the river?

Facts:

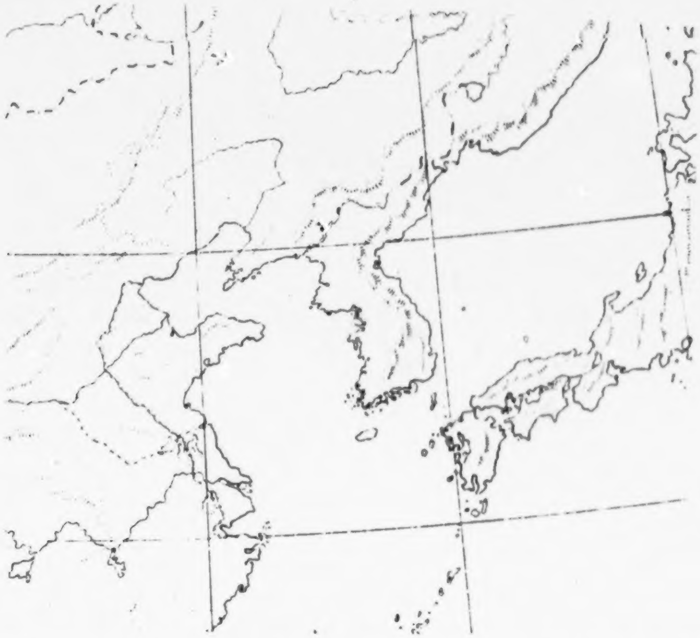
1. The Huang He rises in the highlands of Tibet and flows 2,900 miles to the northeast coast of China. (The Mississippi River flows 2,300 miles).
2. The river flows three quarters of its length (2,175 miles) through China's arid upland country.
3. Extremely cold, dry air blowing out of Asiatic Russia (Siberia) in the summer and winter pick up the loose, arid soils of the uplands and deposit them along the river's course. Thus the Huang He picks up a very heavy load of "silt".
4. The Huang He is said to be comprised of 40% silt, thus its name "Yellow River".
5. The river itself is unpredictable - it left its old course south of the Shandong peninsula in which it has flowed for more than 800 years and assumed its present course north of the peninsula in 1853, a shift of more than 500 miles.
6. The Huang He is refreshed by the cool water of melting snow, then quickly swells in the spring by rains brought by the southeastern "monsoon", overflowing its banks and spreading rich silt over the surrounding land.
7. Many people have been drowned in the floods and many more starved as a result of the crop failures that followed the floods. For this reason the river has been called "China's Sorrow".
8. When the Huang He moves over the North China plain, its rate of flow slows down and much of the silt that was carried along its current drops down to the riverbed.
9. Dikes have been constructed to hold the river in its course. A single break in these dikes can flood thousands of acres of farmland.
10. Over the years the river deposits even more silt until the riverbed in some places stands above the level of the surrounding land. To keep the river in check the dikes must be built still higher.
11. Now, when the Huang He reaches flood stage the result can be catastrophic. Despite many attempts at flood control, the river is still master.

--Andrew Weckherlin, F.S.U.

Note: Draw the following diagram on the chalkboard.



WORLD GEOGRAPHY MYSTERY



In the thirteenth century, the Mongols came to rule China. The Mongols were from Central Asia, and under their Great Khan (Kublai Khan) their empire stretched across Asia from China to Persia.

The Mongols tried to invade Japan two times. In the summer of 1274, 900 Mongol ships with 40,000 warriors attacked Japan. The Mongols lost 200 ships and 13,500 men. In the summer of 1281, the Mongols attacked with 3,500 ships and 100,000 men from Korea, and 900 ships with 42,000 warriors from China. They lost 4,000 ships and over 100,000 men. The Japanese were not conquered. The Mongols never again tried to invade Japan.

Central Question:

Why were the powerful Mongols under the Great Khan so unsuccessful in their invasions of Japan?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why were the powerful Mongols under the Great Khan so unsuccessful in their invasions of Japan?

Facts:

1. Japan is a nation of islands, separated from the Asian mainland by seas and straits. These straits and seas have very strong currents, especially in the winter.

2. The continental effect means that strong winter winds blow off the mainland of Asia across Japan, bringing cold weather to western Japan. These conditions make winter invasions extremely dangerous.

3. The Great Khan thus conducted his invasions in the summer.

4. The continential effect in the summer brings winds across Japan and Korea to the warm mainland. These winds coming over warm ocean waters carry high probabilities for the eastern version of hurricanes called typhoons.

5. There is a typhoon path across the island of Kyushu and up the Korea Strait. Winds screaming along this corridor have wrecked havoc for centuries. The Japanese call these winds KAMIKAZE. "divine wind".

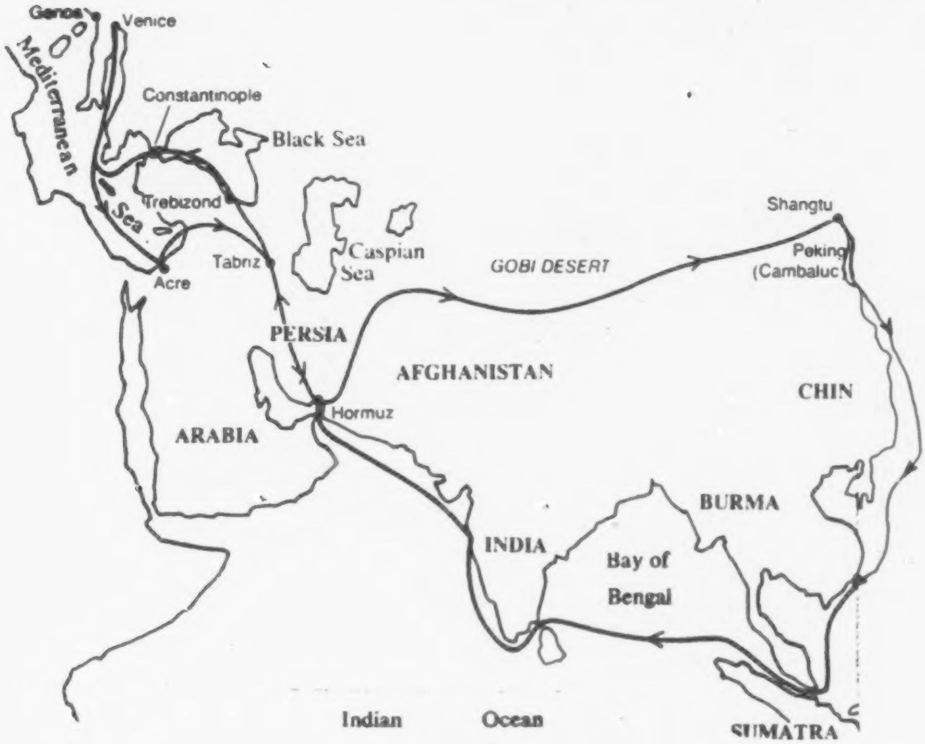
6. The Mongols ignored the warnings of summer Kamikaze.

Appropriate Conclusion:

On both invasions, Kamikaze winds struck the Mongol fleets, wrecking havoc and protecting the much weaker Japanese forces. While some Mongol warriors landed, most did not, and those who made land were defeated by the Japanese.

Note that the Japanese in the Second World War adopted this Kamikaze name for suicide pilots in a last ditch effort to protect Japan from foreign invasion.

WORLD GEOGRAPHY MYSTERY


Genoa
Venice
Mediterranean Sea
Constantinople
Black Sea
Trebizond
Tabriz
Acre
Caspian Sea
GOBI DESERT
Shangtu
Peking (Cambaluc)
PERSIA
AFGHANISTAN
CHIN
Hormuz
ARABIA
INDIA
BURMA
Bay of Bengal
Indian Ocean
SUMATRA

Marco Polo (1254-1324) from Venice, Italy, made a famous trip to China. His father and uncle had made two business trips to China, and took him on a third trip when he was 17 years old. They went to the summer place of the great Mongol, Kublai Khan. Marco Polo travel led overland to China. He travel led through Palestine, Mesopotamia, Persia, and Afghanistan, through Central Asia and the Gobi Desert.

Central Question:

Why would a wealthy Venice businessman walk and ride animals to China, when Venice was a shipping and naval power?

Map: Helen Draper, The
Discoverers.New
York: McGraw-Hill.

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why would a wealthy Venice businessman walk and ride animals to China when Venice was a shipping and naval power?

Facts:

1. The overland route was a long established route to China, often called the Silk Road (because of the silk and spice trade).
2. No Europeans had navigated the coast of India, southeast Asia, and China.
3. There was no sea route from the Mediterrean Sea to the Indian and Pacific Oceans (no Suez Canal or charts).
4. The summer residence of the Great Khan (Shangtu) was not directly accessible by sea, and the land route was better.

Appropriate Conclusion(s):

Europeans, even the well travelled led Venice businessmen, knew little of sea route to China and had no direct route. The traditional Silk Road, while arduous,was the best and safest.

WORLD GEOGRAPHY MYSTERY

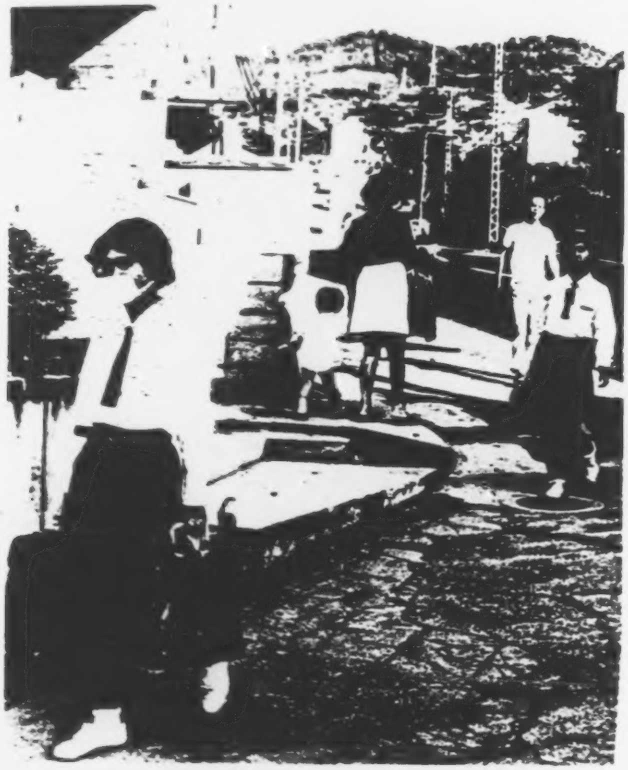


Photo: Courtesy of the Government of Japan

Different cultures have different customs and standards for behavior. Here a Japanese school girl is dressed in Western clothing. In the 196Os, such Western-style dress was quite common. What is perplexing, however, is her mask.

Central Question:

Why would this young Japanese student be wearing a mask?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why is this young Japanese school girl wearing a mask?

Facts:

1. The Japanese have never had any cultural expectations which would require women to be veiled in private or public.

2. The Japanese have Shinto, a religion heavily oriented to a respect for the Japanese homeland, or place - the ancient islands which make up Japan.

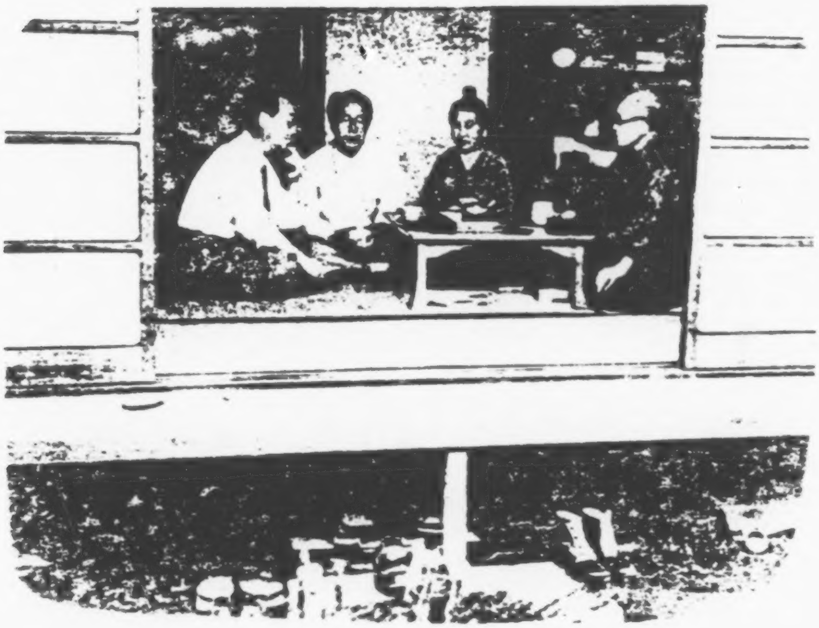
3. Despite this intensive pride and devotion to the land and of the nation, Japanese industrialization brought pollution - just as it has in all other industrialized nations.

4. Air and water pollution are common. Air pollution is especially heavy in and near urban areas or industrial regions.

Appropriate Conclusion(s):

This Japanese youngster is wearing a mask to filter air pollution. Many Japanese in urban and industrial regions wear such masks outside to help keep pollution from their lungs. Thus, they hope to prevent (or diminish) illness and disease.

WORLD GEOGRAPHY MYSTERY



Rice is a main farm product in Japan. It is used for food, of course, but it is also used for other products. Rice is used for making paper and rice paper is used for making walls in traditional Japanese homes.

Central Question:

Why would walls in traditional Japanese homes be made of wood and paper?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why would walls in traditional Japanese homes be made of wood and paper?

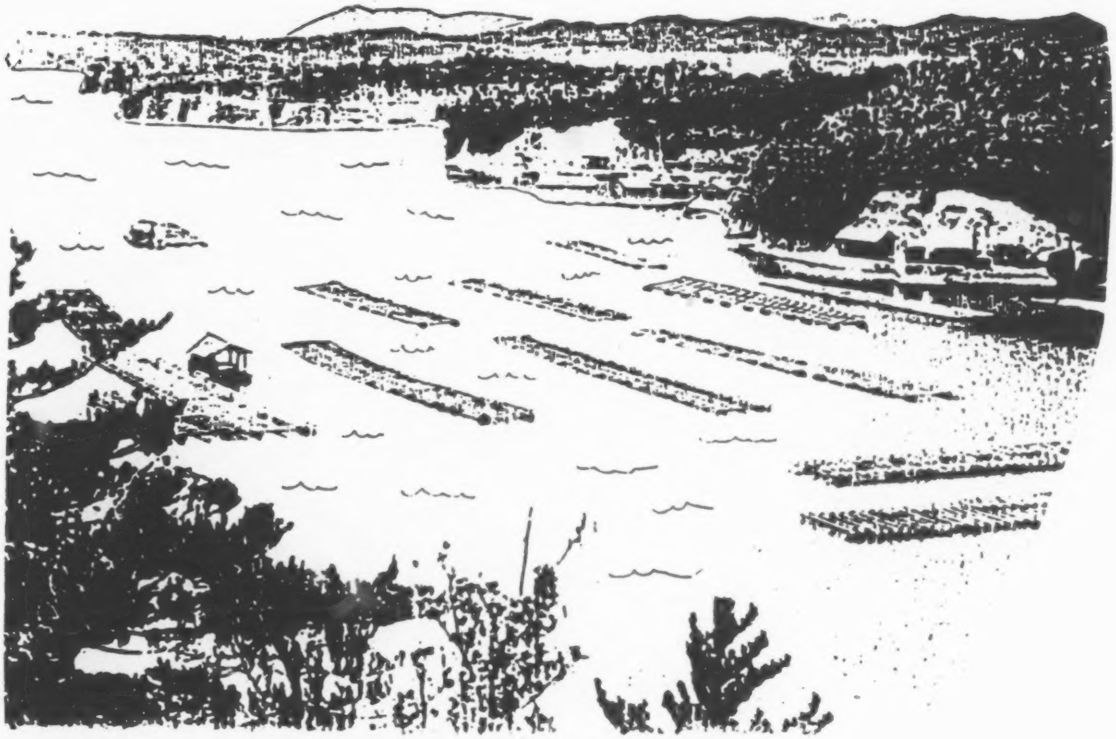
Facts:

1. Paper and wood frame walls are light weight.
2. These walls are easily constructed.
3. These walls are quite functional, even with Japan's cold winters and snows.
4. Japan has active volcanoes and is in a major earthquake zone. It is said that a measurable earthquake occurs every three minutes somewhere in Japan (even though people do not notice these quakes).

Appropriate Conclusion:

Japan has scarce resources and thus paper was convenient and economical. Wood and paper walls are not heavy and do not add to earthquake damage. They are repaired quicker than concrete walls.

WORLD GEOGRAPHY MYSTERY



While traveling along one of Japan's many inlets and bays, one might notice structures such as those shown in the water. While not unique to Japan these structures are very important to the country.

Central Question:

What are these structures and why are they important?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

What are these structures (in picture) and why are they important?

Facts:

1. There are hundreds of these structures in Japan's waters.
2. The idea behind these structures was originated by the Chinese.
3. These structures are called "sea farms".
4. These sea farms comprise an important part of Japan's export trade.
5. It takes about seven years for these sea farms to produce a quality "crop".
6. The animal inside this farm is placed in a cage and securely tied to the framework shown in the picture and submerged for the period of maturation.
7. Similar oyster farms exist in Florida, especially in Apalachicola Bay.

Appropriate Conclusion(s):

This is a picture of Japanese sea farms which are devoted to the cultivation of pearls. Although the production of cultured pearls was originated by the Chinese, the process was perfected by extensive research in the 1890s by a Japanese, K. Mikimoto, who is credited with giving the industry its start.
To produce a cultured pearl an irritative substance is introduced inside each shell. The oysters are then placed in cages tied to the framework of the sea-farm and submerged for the period of maturation, which requires about seven years for a pearl of suitable years for a pearl of suitable size and quality to form.

Sources: The World and its Peoples,
Greystone Press/New York
--Andrew Weckherliln, F.S.U.

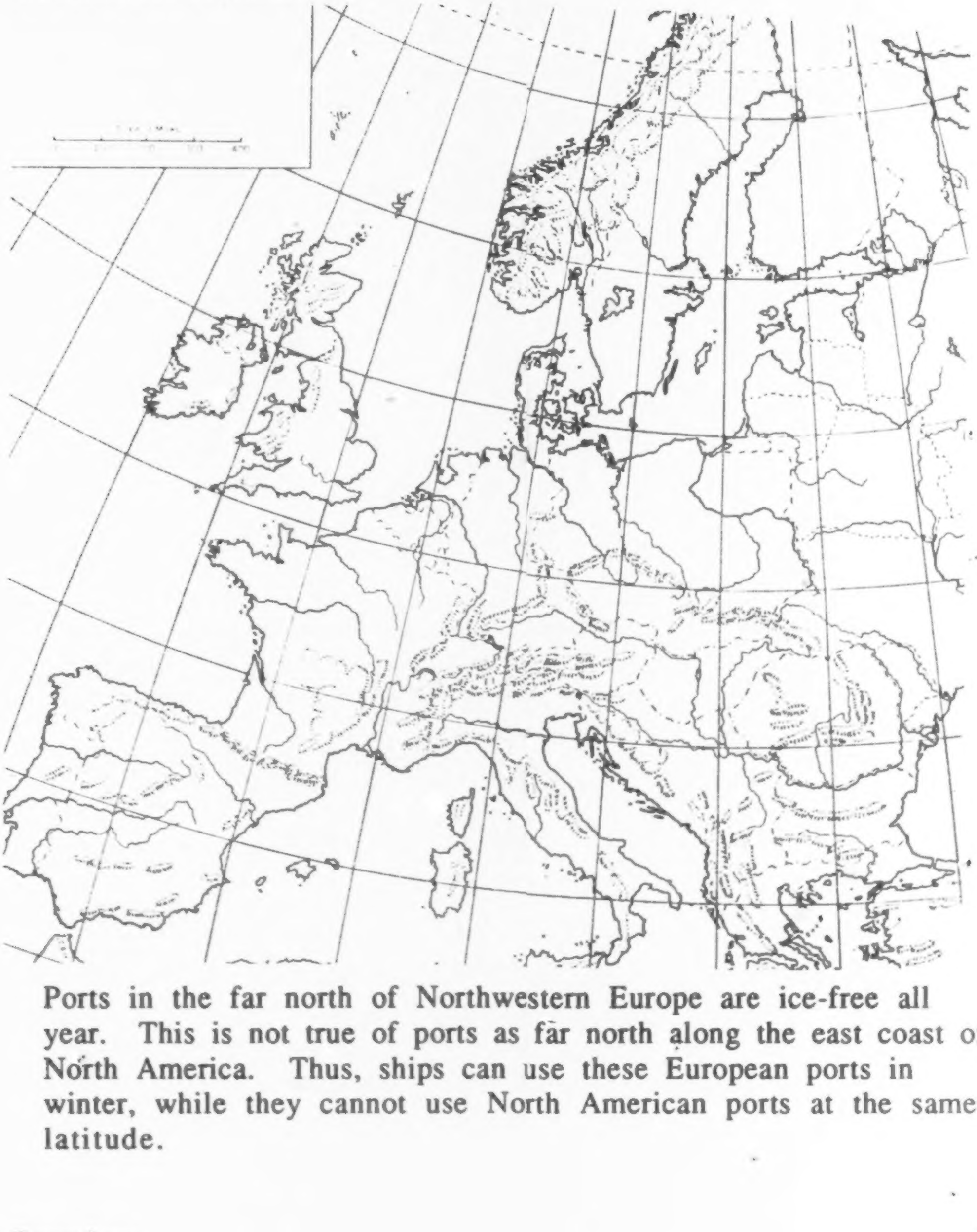
PART FIVE

EUROPEAN REGION

(Western Europe, Central Europe,

and Eastern Europe)

WORLD GEOGRAPHY MYSTERY



Ports in the far north of Northwestern Europe are ice-free all year. This is not true of ports as far north along the east coast of North America. Thus, ships can use these European ports in winter, while they cannot use North American ports at the same latitude.

Central Question:

Why do these Northwestern European ports remain ice-free?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

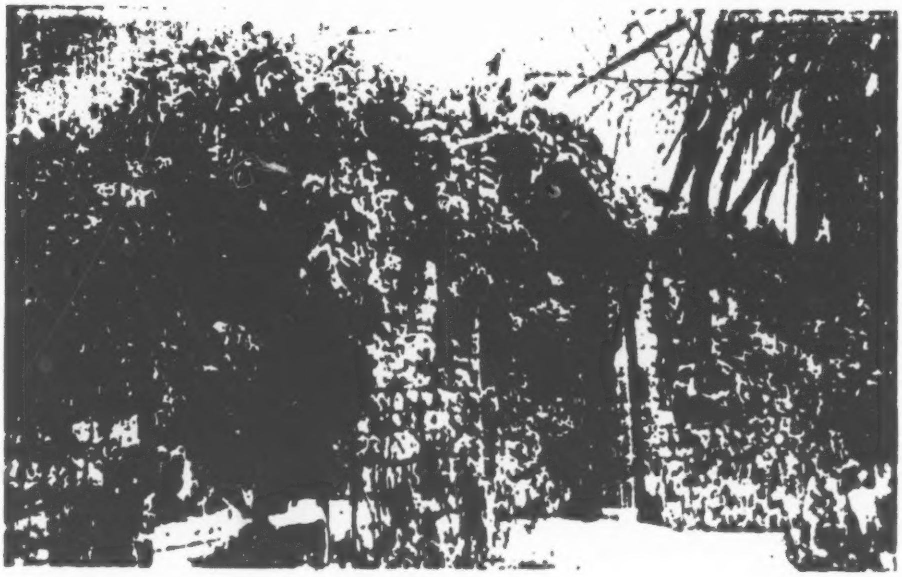
Why do these Western European ports remain ice-free?

Facts:

1. North or south latitude is but one determinant of temperature at any time of the year. Temperature is affected by elevation, wind currents, and ocean currents.
2. Ports along the northern coast of North America do not have warm ocean currents. The Gulf Stream veers off across the North Atlantic Ocean to northern Europe.

Appropriate Conclusion(s):

The warm Gulf Stream keeps these far northern European ports relatively ice-free during the winter.



In the British Isles, even as far north as Scotland, gardens include semi-tropical plants. Plants, which we see in Florida, grow in England.

Central Question:

Why can semi-tropical and even tropical plants grow outdoors in the British Isles?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why can tropical plants be grown outdoors in the British Isles?

Facts:

1. The British Isles are located at a latitude of approximately 5O degrees N to 6O degrees N.
2. The only place in the British Isles where tropical plants can be grown outside is on the Scilly Isles, which are located about 28 miles southwest of England.
3. The Isles are small and are bathed by the warm waters of the North Atlantic Drift.
4. Bananas, palm trees, eucalyptus trees and cinnamon plants grow here.

Appropriate Conclusion(s):

The warm waters of the North Atlantic Drift give the Scilly Isles a mild climate enabling plants to grow which are native to places much closer to the equator.

Photo: Irish Tourist Board

In Northern Europe, a person can be seen cutting "bricks of earth" in a marshy field which has been drained. The "bricks" are allowed to dry for about six weeks and weigh from one to two pounds each.

Central Question:

For what are these "earth bricks" then used?

Teacher Factsheet

Central Question:

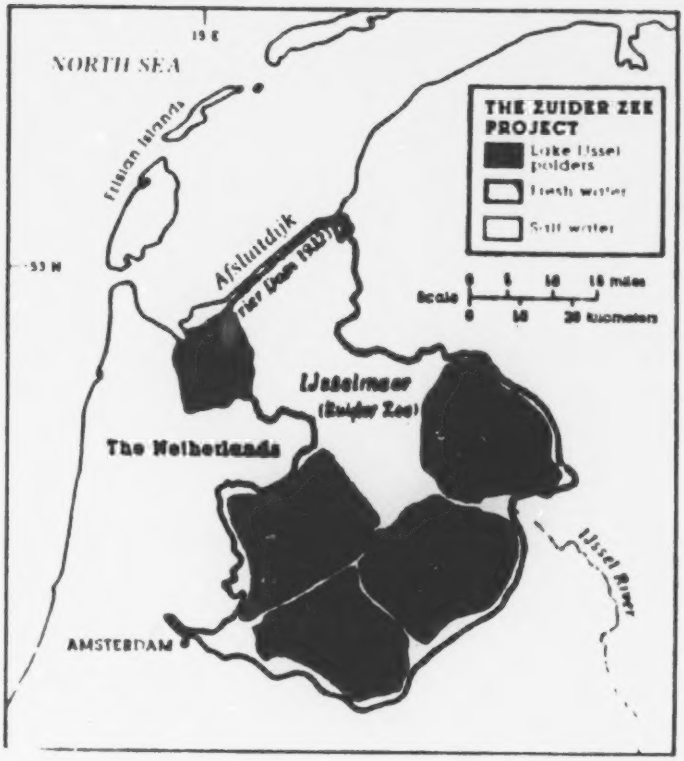
For what are these "bricks" then used?

Facts:

1. A mass of decayed vegetable matter formed in swamps and bogs is called peat.
2. Vast accumulations are found primarily in the Northern Hemisphere.
3. In its natural state, peat contains 90 to 95 percent water.
4. Peat is the first step in the formation of coal.
5. Peat is used for fuel in places where wood, coal, and other fuels are scarce.

Appropriate Conclusion(s):

The man in the field is cutting "bricks" of peat which will be used for fuel when dry.


NORTH SEA
Frisian Islands
53 N
Afsluitdijk
Barrier Dam (1932)
THE ZUIDER ZEE PROJECT
Lake IJssel polders
Fresh water
Salt water
Scale
0 5 10 15 miles
0 10 20 kilometers
IJsselmeer
(Zuider Zee)
The Netherlands
IJssel River
AMSTERDAM

In ancient times, the area now known as the Netherlands had a vast lake called Flevo Lacus. It was separated from the salt waters of the North Sea by low lands, rich for farming.

Central Question:

What happened to this lake - Flevo Lacus?

Teacher Factsheet

Central Question:

What happened to this lake - Flevo Lacus?

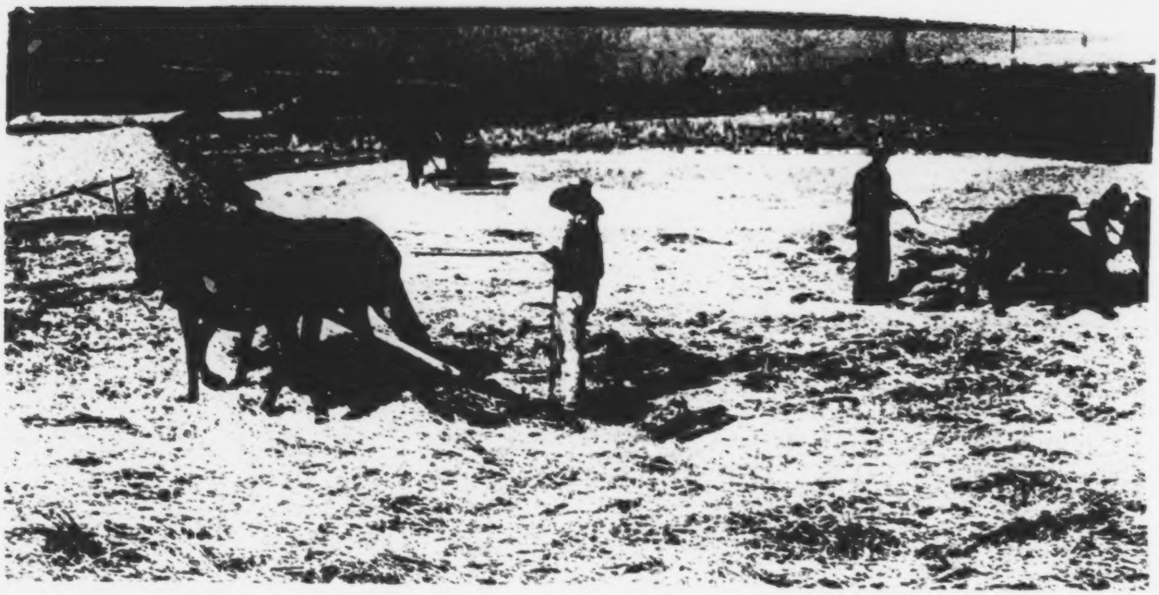
Facts:

1. In the 13th century a major flood breached the low lands between the North Sea and the lake. All that remains is a chain of islands. The lake became an inland arm of the North Sea.
2. In 1932 dikes were built (a barrier dam). This separated the North Sea from the Zuider Zee ("Southern Sea").
3. The water level is controlled in the Zuider Zee. Poldering began. Poldering is the process of reclaiming lands from the Zuider Zee. Amsterdam, for example, has grown on lands reclaimed from the ancient lake bed (the Zuider Zee) by poldering. Most polders are used for farming.

Appropriate Conclusion(s):

The lake was merged into the North Sea by flood waters cutting the low lands between the sea and the lake. Today, with a barrier (dike) the lake bottom is being reclaimed as dry land - the rest is the famous Zuider Zee.

WORLD GEOGRAPHY MYSTERY



Here is Spain, farmers are guiding their animals around in circles. Round and round they go. This is not a new activity. Farmers have guided their animals around in circles for centuries in Europe and the Middle East.

Central Question:

Why are these farmers travelling in circles?

Teacher Factsheet

Central Question:

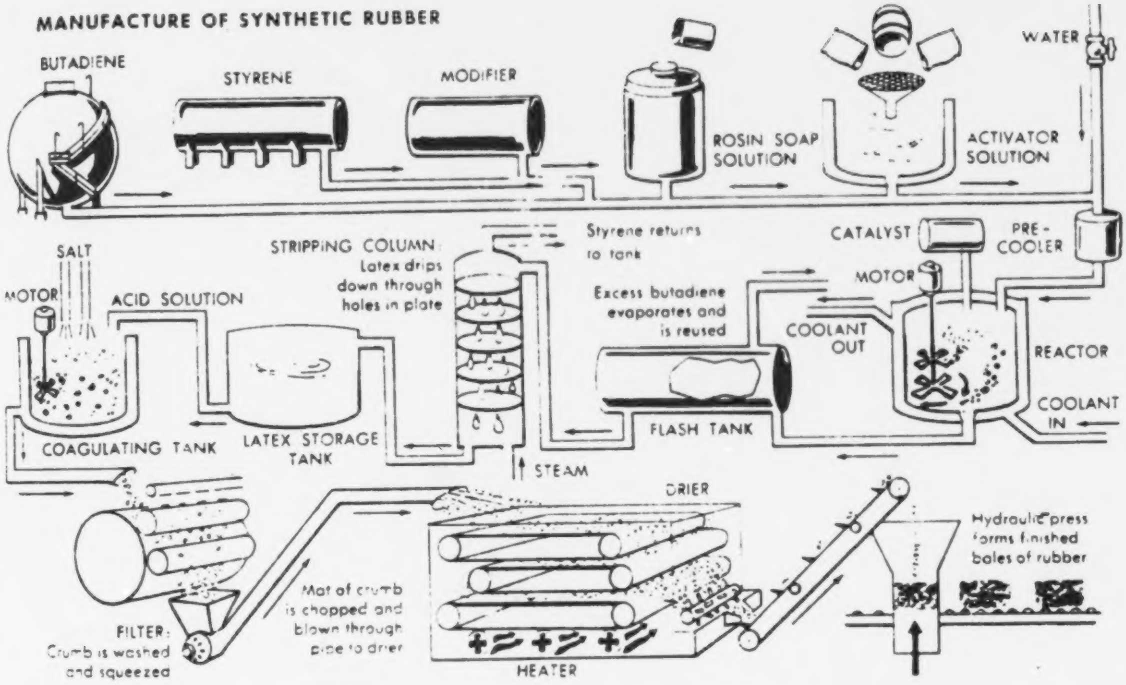
Why are these farmers travelling in circles?

Facts:

1. The farmers are carried on animal-drawn sleds.
2. Hidden from view is a stone floor. The action of the sled on the stone floor separates ripe berries of grain (wheat, oats, barley, etc.) from the stalks.
3. The straw is carried off and used for animal bedding.
4. The berries of grain are separated from the chaff by throwing into the breeze. The light chaff blows away. The heavier berries of grain fall into a clean pile of grain.

Appropriate Conclusion(s):

The farmers are travelling on a shed on a threshing floor hidden by the stalks of wheat or other grains. The action of the sled on the stone floor works the berries of ripe grain off the stalk. The straw is carried away and the berries of grain are separated from the chaff by throwing the grain in the air (wind).


MANUFACTURE OF SYNTHETIC RUBBER
BUTADIENE
STYRENE
MODIFIER
ROSIN SOAP SOLUTION
ACTIVATOR SOLUTION
WATER
SALT
MOTOR
ACID SOLUTION
STRIPPING COLUMN: Latex drips down through holes in plate
Styrene returns to tank
CATALYST
PRE-COOLER
MOTOR
Excess butadiene evaporates and is reused
COOLANT OUT
REACTOR
COOLANT IN
FLASH TANK
COAGULATING TANK
LATEX STORAGE TANK
STEAM
DRIER
Hydraulic press forms finished bales of rubber
Mat of crumb is chopped and blown through pipe to drier
FILTER: Crumb is washed and squeezed
HEATER

During the Second World War (1939-1945), the nations at war needed many resources to conduct their war effort. Rubber was very important for tires and equipment.

Natural rubber was produced in Central America and in Southeast Asia. But the Germans invented synthetic (man-made) rubber. During the war, they made their own rubber from coal.

Central Question:

Why did the Germans invent and make synthetic rubber?

Teacher Factsheet

Central Question:

Why did the Germans invent and make their own synthetic rubber?

Facts:

1. Natural rubber produced from natural latex from trees in Southeast Asia, South Asia, and Central America was as plentiful as ever.

2. Germany had no means to grow natural rubber produced from trees.

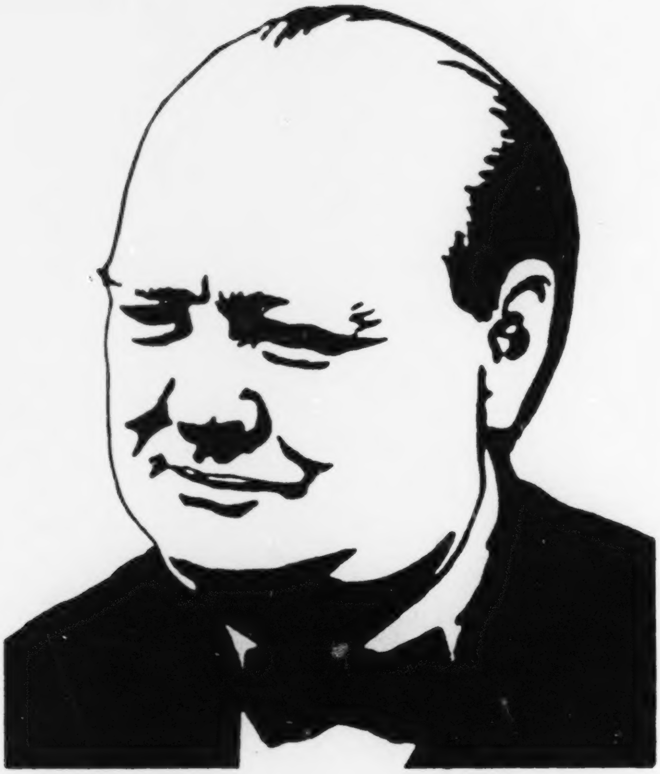
3. It was cut off from the normal sea routes to the natural rubber supplies. Most of these supplies were controlled by enemy nations. But even those controlled by Japan, Germany's ally, were not accessible by sea or land.

4. Germany did not have abundant supplies of coal. It had the scientific means to develop synthetic rubber. It had the technological capacity to build plants to turn coal into rubber.

Appropriate Conclusion(s):

Necessity may be the mother of invention. Cut off by war from natural rubber - with a vital need for rubber, the Germans discovered a way to make their own - and did so.

WORLD GEOGRAPHY MYSTERY



World War II ended in 1945 with the defeat of the Axis powers, Germany, Italy, and Japan. But conflicts soon developed among the Allies. On March 5, 1946, Sir Winston Churchill, a British leader, gave a speech in America. He said that "an Iron Curtain" was being rung down across Eastern Europe. This curtain was the work of the Soviet Union, its leader Joseph Stalin and its Communist government. Today, people still talk about this "Iron Curtain" which once separated free Europe from the Eastern European nations controlled by the Soviet Union.

Central Question:

Where could you have gone to see this "Iron Curtain" in Eastern Europe?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Where could you have gone to see this "Iron Curtain" in Eastern Europe?

Facts:

1. After WWII Stalin and the Soviet Union tried to dominate the governments of Eastern European nations, making them satellites of the Soviet Union-- in political systems and in economic systems.

2. The Soviet Union tried to seal itself and its Eastern European satellites off from world contact, especially with Western European and American influences.

3. In a speech delivered at Westminster College, Fulton, Missouri, Sir Winston Churchill spoke of the "Iron Curtain" as an image of this sealing off. His speech was delivered on March 5, 1946.

4. Later, in 1949, after the Communists took control of China, the government there was said to have a "Bamboo Curtain", cutting itself and its peoples off from Western contacts and influence.

Appropriate Conclusion(s):

The "Iron Curtain" could not be "seen" as a real iron curtain. It was a figure of speech for an inward turning, privacy, exclusiveness of the Soviet Union and its dominions in the era after WWII. The best physical representation of the Iron Curtain may well have been the Berlin Wall -- a structure that was constructed of steel, concrete, and stone. (During the fall of 1989 the peoples of West Germany and East Gemany began the task of taking the wall down).

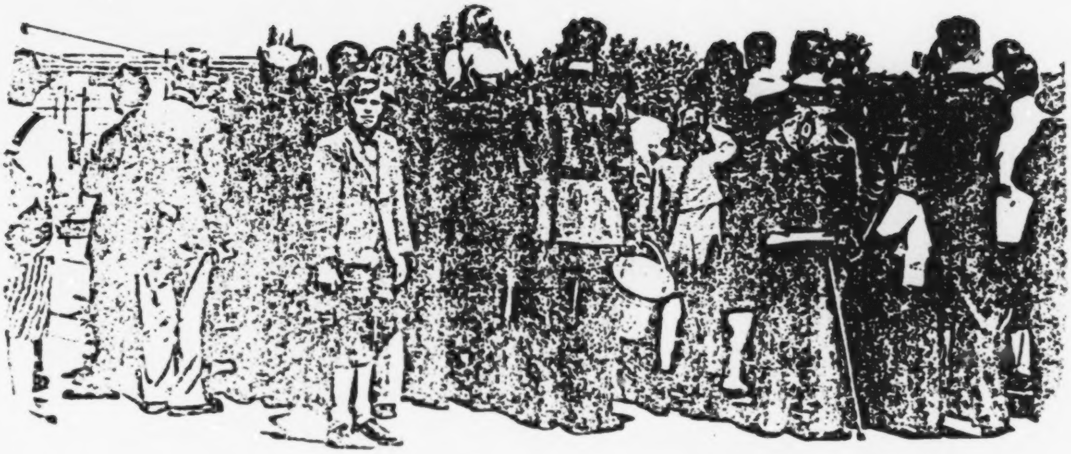


Photo: U.S. Air Force

Airplane fever. In one European City, people turned out to watch airplanes arrive. They stopped along the streets and roads to look upward. Citizens, young and old, went to the airport to watch planes arrive, circle, and land. Each arrival seemed to bring happiness to those watching. There was nothing special about these big, propellor-driven airplanes. The people had seen planes like this many times before, without any such excitement.

Central Question:

What was so important about these airplanes, at this time, to these people?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

What was so important about these airplanes, at this time, to these people?

Facts:

1. After WWII, Germany was partitioned "temporarily" into four zones -- American, Soviet, British, and French. The capital city, Berlin, was deep within the Soviet sector or zone. It too was partitioned into four zones.

2. On June 24, 1948, the Soviet Union imposed a land blockade on all travel and shipments to "West Berlin" -- the three sectors governed by the Americans, French, and British. This blockade was to achieve a Soviet political point with the Western Powers.

3. Check the location of Berlin and its sectors within the Soviet-controlled "East Germany" on a map. Berlin is almost unique as a world city without a hinterland to support and sustain it, because of political partitions and power interests.

4. The people of West Berlin were cut off from regular communication and supply routes with West Germany. From June 24, 1948, to May, 1949, the United States supplied Berlin by air. Cargo planes ran the Berlin Airlift - supplying the city's citizens with the basics of life.

5. While the blockade was lifted in May, 1949, and land routes opened, the Berlin Airlift remains in the historic memory of all West Germans. The separation of Germany into East and West became more of a reality. And in 1961 the construction of the "Berlin Wall" became a symbol of the great difference between the two nations.

Appropriate Conclusion(s):

The people were Germans living in the Western sectors of Berlin, who had been cut off from the rest of free Germany by a Soviet-imposed blockade. For almost a year they were supplied by air by American planes.

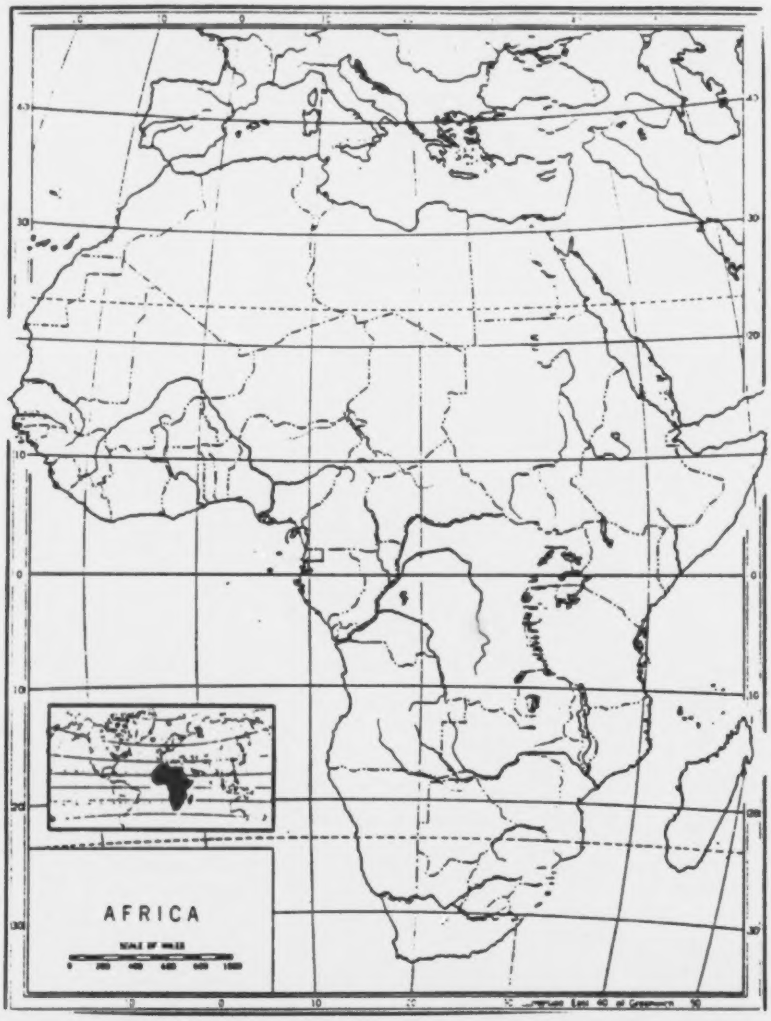
Traci L. Denson, F.S.U. 1986

PART SIX

AFRICA

(North Africa and Africa
below the Sahara Desert)

WORLD GEOGRAPHY MYSTERY



In size, the continent of Africa is second in size only to Asia. Africa is mostly a plateau, rising sharply from the coast and dipping toward the center. Rivers which begin high in Africa's interior divide the plateau. The Sahara Desert in North Africa is the world's largest desert. Other geographic features are interesting...but none is so strange as the picture outsiders have of Africa.

Central Question:

Why is Africa known to most non-Africans as "The Dark Continent"?

Teacher Factsheet

Central Question:

Why is Africa known to most non-Africans as "The Dark Continent"?

Facts:

1. Images of any place or people are shaped by the information available and the attitudes of the people receiving the limited information.

2. For many centuries information about Africa below the Sahara Desert was limited. Europeans and then Americans knew little of the geography or the peoples of South and Central Africa.

3. Information was limited by few contacts. Little trade, little exploration, little travel by Africans to the outside, or of outsiders to Africa...all worked to restrict knowledge...and thus paved the way for inaccurate images.

4. The vast Sahara, few harbors, few navigable rivers, and other geographic features limited contact.

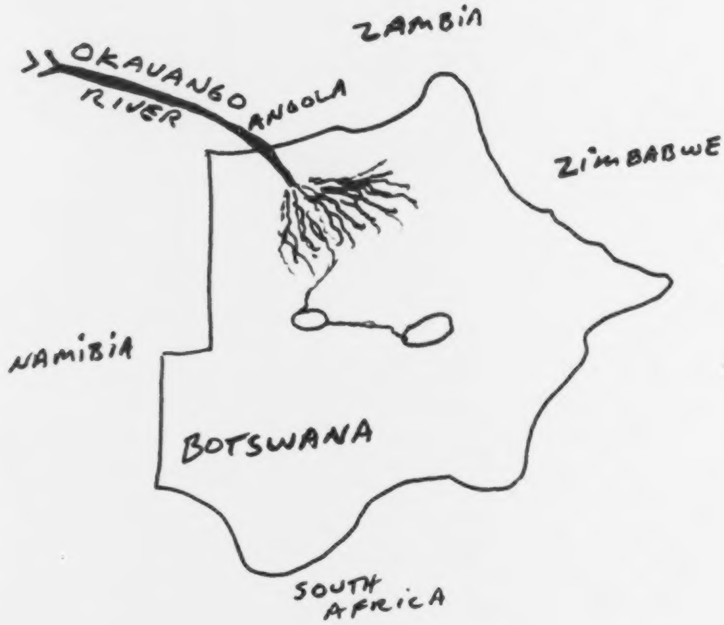
5. The preoccupation of Europeans and then Americans with other regions of the world contributed to the lack of accurate information, at the time when images of Africa were being shaped in the Western World.

6. The slave trade, followed by imperial rule, made Africans more suspicious and less open to Westerners, while at the same time Western slave traders, missionaries, businessmen, and imperial governments had purposes served by inaccurate images of Africa as a "dark continent"... needing enlightening.

Appropriate Conclusion(s):

The "Dark Continent" image was fostered by inaccurate and limited knowledge in the Western World -- which came to serve the purposes of many interest groups.

WORLD GEOGRAPHY MYSTERY


ZAMBIA
OKAVANGO
RIVER
ANGOLA
ZIMBABWE
NAMIBIA
BOTSWANA
SOUTH AFRICA

The Okavango River rises from rainfall in the Angolan Highlands and then flows in a steep valley across the Caprivi Strip into Botswana. Once in Botswana, the river stops. It does not flow off into an ocean or a large body of water. It just flows rapidly into a vast delta and stops. The river flows all year long. It gets plenty of rain water from the tropical rain forests of Central Angola. The river does not go underground. It just stops in Botswana.

Central Question:

Why does the great Okavango River just stop flowing at the huge delta in Botswana?

Teacher Factsheet

Central Question:

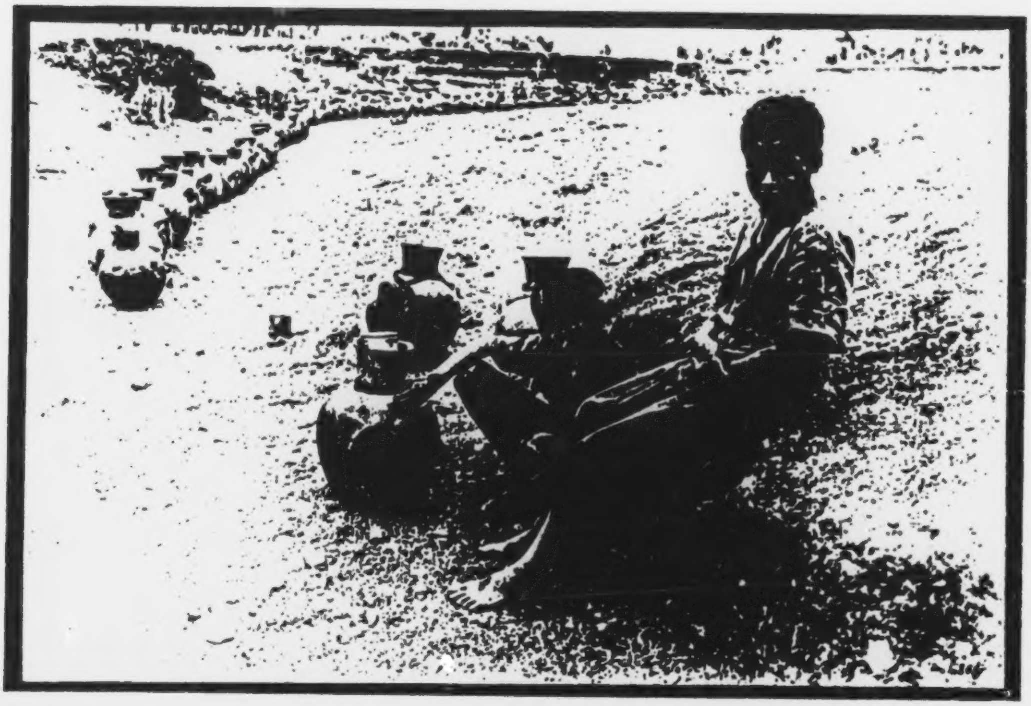
Why does the great Okavango River just stop flowing at the huge delta in Botswana?

Facts:

1. In geologic time past, the Okavango River probably flowed southeast toward the open sea. But earthquakes or shifts in the lay of the land blocked that flow.
2. The area of the Okavango delta is a huge basin - a depression in the Earth. The Okavango flows into this depression, breaks into smaller streams, and its flow slows. The waters deposit their alleuvial soils.
3. The rich, wet delta is a vast marsh, covering thousands of acres of land. It is rich with plant and animal life.
4. Some water flows past the delta into two lakes which are salt pans. That is the water quickly evaporates in the very dry, sunny Botswana air, leaving behind salt and other mineral deposits in these "lakes".
5. The rich delta swamps are just north of Botswana's vast Kalahari Desert -- famed for its Bushmen (or San peoples).
6. Botswana is about the size of Texas, with a small population in relation to its size. Most people live in the eastern part.

Appropriate Conclusion(s):

The Okavango River flows into a depression, its waters fan out into a delta (an inland delta) and evaporate in the hot, dry climate.



Miles outside Sekota, Ethiopia, two children wait by objects lined up on the land. These strange heavy objects are lined. up each evening by people from this town of 120,000 inhabitants.

Central Question:

What are these objects and why are they lined up every evening before dark?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

What are these objects and why are they lined up every evening before dark?

Facts:

1. The town of Sekota, Ethiopia, with 120,000 people only has eight wells.

2. Due to years of drought, these wells are only open for a few hours each morning. Then their water supply is exhausted for the day.

3. To get their supply of water, the women of the town carry their heavy earthenware jars to one of the wells. They line up their jars, first come, first served in the morning when the wells open.

4. The women must carry these earthenware jars for miles. First, they carry them empty to the well...and then, they carry them full of water in the morning.

5. The water obtained is a family's complete water supply for the day. It must cover food preparation, washing persons, clothes, and the household, and all other uses.

6. While this picture was taken in Ethiopia in 1986, it is a scene which has been repeated for many dry years in Ethiopia and in other countries of the Third World.

Appropriate Conclusion(s):

The objects are heavy, earthenware water jars. They are lined up by women who seek their family's daily water supply the next morning.

Developing a reliable potable water supply is a major need in most Third World nations. Such water supplies are fundamental to health and to material standard of living.

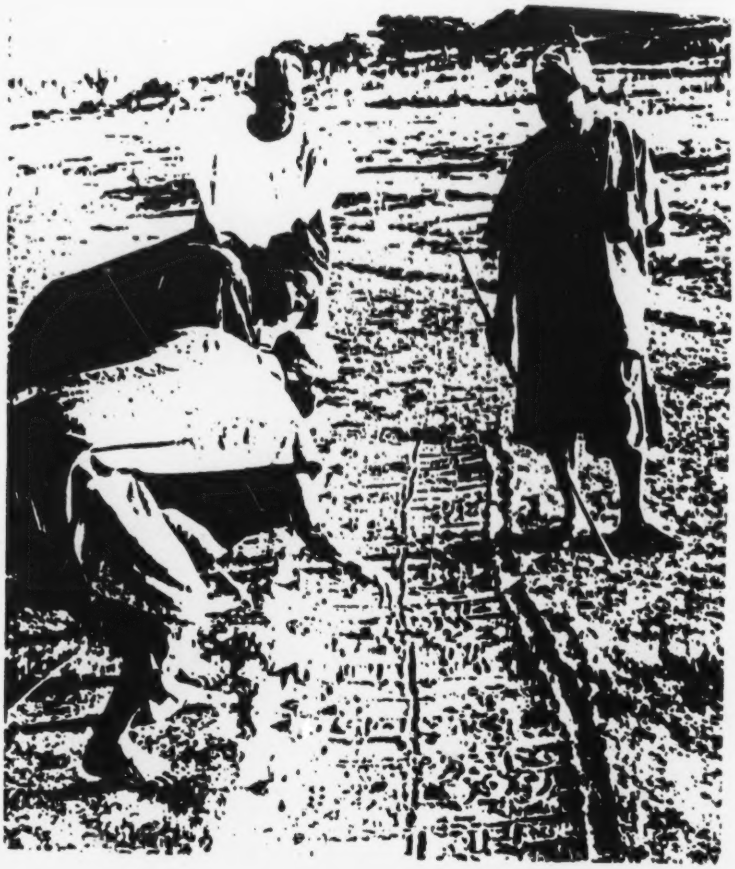


Photo: Courtsey of the United Nations

This is a photograph of farmers in Mali, south of the Sahara Desert, in West Africa. They grow crops in an arid region.

Central Question:

What are these farmers of Mali doing? And why are they doing it?

Teacher Factsheet

Central Question:

What are these farmers of Mali doing? And why are they doing it?

Facts:

1. Nature is often fickle for these and other farmers in Africa. Mali, south of the Sahara Desert, is arid and agriculture especially difficult.

2. Some years they get bountiful harvests and all is well. Other years there are floods or long droughts which result in famine. It is difficult for traditional farmers to understand or explain these variations which have disastrous consequences.

3. Traditional farmers worked out traditional explanations. These explanations rested upon spirits and were used to account for bounty and hardship. These explanations also gave farmers ways to intervene (to change their fate) and ways to predict their fate. (Note that modern science/technology is designed to explain, predict, and intervene in natural processes to change them!)

Appropriate Conclusion(s):

These Mali farmers try to predict the future by drawing diagrams in the sandy soil. During the night, foxes and other animals run over the diagrams. In the morning, the men try to read the future by studying the animal tracks. If the spirits reveal hardship, the farmers will act to please the spirits and thus attempt to alter their future (or fate!).

WORLD GEOGRAPHY MYSTERY

Snow on the equator! Mount Kenya is located right on the line around the globe which we call the equator. It is located in the country of Kenya and has an elevation of 17,058 feet above sea level. Mount Kilimanjaro, the highest mountain in Africa, is located nearby in the country of Tanzania. Both of these great mountains have snow caps all year long.

Central Question:

Why do these mountains have snow all year long?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why do these mountains have snow caps all year long?

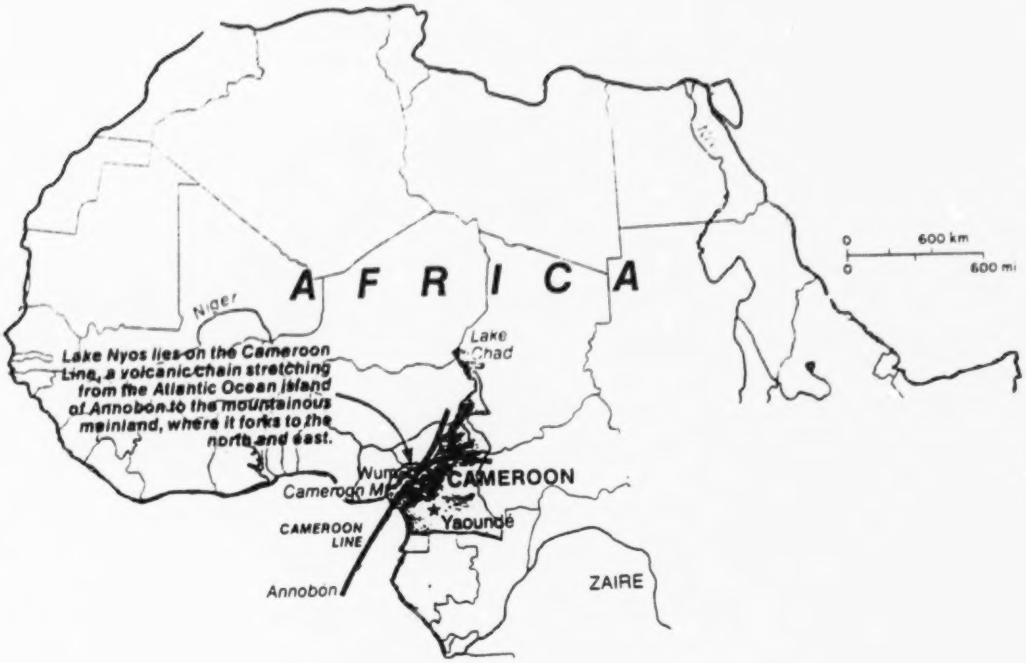
Facts:

1. Generally speaking, the warmest places on Earth are found near the equator, and the coldest parts of the Earth are found near the North and South Poles.
2. Generally speaking, places of the Earth at the same latitude are warmer at lower elevations and colder at higher elevations.

Appropriate Conclusion(s):

Even though Mount Kenya and Mount Kilimanjaro are at or near the equator, they have such majestic (high) altitudes, that it is cold enough for snow caps all year round.

WORLD GEOGRAPHY MYSTERY


AFRICA
Niger
Lake Chad
Lake Nyos lies on the Cameroon Line, a volcanic chain stretching from the Atlantic Ocean island of Annobon to the mountainous mainland, where it forks to the north and east.
Wum
CAMEROON
Cameroon M
Yaoundé
CAMEROON LINE
Annobon
ZAIRE
0 600 km
0 600 mi

National Geographic,
Sept., 1987

Without warning one summer evening in 1986, 1700 villagers in the highlands of Africa's Cameroon perished. They lived near a beautiful volcanic lake, Lake Nyos. It is one of more than thirty crater lakes set like jewels in a volcanic chain, stretching across this nation. But in spite of the lovely setting, not a creature - human or animal - moved the next morning. Bodies lay strewn around and in heaps.

Central Question:

What caused this holocaust in Cameroon?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

What caused this holocaust in Cameroon?

Facts:

1. There was a loud rumbling noise that lasted for about an hour.

2. The loud noise was followed by a ghostly column of vapor which poured out of the lake like a smoking river into the valley. At that moment, a great blast of wind came up from the lake with the stench of rotten eggs.

3. The cloud moved ten miles spreading death in its path.

4. The release of one billion cubic meters of gas dropped the lake level more than a meter. Lake Nyos was stained with a rusting iron compound-ferric hydroxide-carried up from the bottom by the escaping gas and precipitated into the surface water.

5. A water surge accompanied the gas burst, gushed as high as 80 meters.

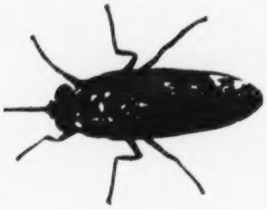
Appropriate Conclusion(s):

A team sponsored by the Office of US Foreign Disaster Assistance theorizes that, over the years, carbon dioxide escaped from hot rock into groundwater and ultimately into the lake. The carbon dioxide, held in a dissolved state by the weight of the water above it, reached highest concentrations in water at lower depths. At the moment of expulsion, the carbon dioxide shot to the surface and was expelled as gas. Among the possible causes of the upwelling: a landslide, an earth tremor, turbulence from a strong wind or rain, or a disruption of the stratification caused by a change in water temperature.

Offering another theory, French and Italian investigators contend that the disaster was triggered by an eruption in a volcanic pipe connected to a magma source.

Denis D. Butler, Franklin County Schools

WORLD GEOGRAPHY MYSTERY



Africa is home to some of the Earth's deadliest creatures. Lions, often called the "King of Beasts", grow to nine feet long and weigh up to 400 pounds. Crocodiles grow to 12 feet long and use very sharp teeth to grasp their prey. The unsociable rhinoceros with its thick hide and strong horn will charge suddenly without warning. Yet above all of these deadly creatures, the people of Central Africa most fear this tiny insect.

Central Question:

With all the fierce, deadly creatures in Africa, why do the Central Africans fear this tiny insect?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

With all the fierce, deadly creatures in Africa, why do the Central Africans fear this tiny insect?

Facts:

1. Africa has several serious health problems, one of which is the presence of sleeping sickness.
2. The bite of the Tsetse Fly causes the dreaded disease sleeping sickness. With its long beak, the Tsetse Fly pierces the victim's skin and draws blood. As it sucks the blood, the victim is infected. Symptoms include severe headaches, shaking, fevers, and extreme sleepiness. A coma and death follow.
3. The Tsetse Fly not only infects people, but also kills cattle and other livestock. The slow development of modern agriculture and communication in tropical Africa has been attributed, in part, to the presence of the Tsetse Fly.
4. Tsetse Flies breed slowly. The female fly only has one larva at a time. It is usually deposited in the ground.
5. Africans try to kill the larva by burning the grass and brush where the larvae have been deposited. Today, chemicals are manufactured which make the Tsetse Flies unable to reproduce.
6. Actions to destroy the Tsetse Fly are slow and costly. Meanwhile, the insect takes its toll in human suffering and in retarding economic development.

Appropriate Conclusion(s):

The Tsetse Fly carries the dreaded disease sleeping sickness to human beings and livestock.

WORLD GEOGRAPHY MYSTERY

Shortly after World War II, the British government spent nearly $100 million trying to raise peanuts in what is now Tanzania, or Tanganyika, as it was called when it was a British colony. It sounded like a great idea. Peanuts were excellent foods. Peanuts could be used to make artificial butter - margarine. Margarine was important in Britain, since butter was scarce and expensive. But the best British plans failed. Peanuts were not to be a big cash crop in East Africa at this time.

Central Question:

Why was peanut growing in Tanzania unsuccessful?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

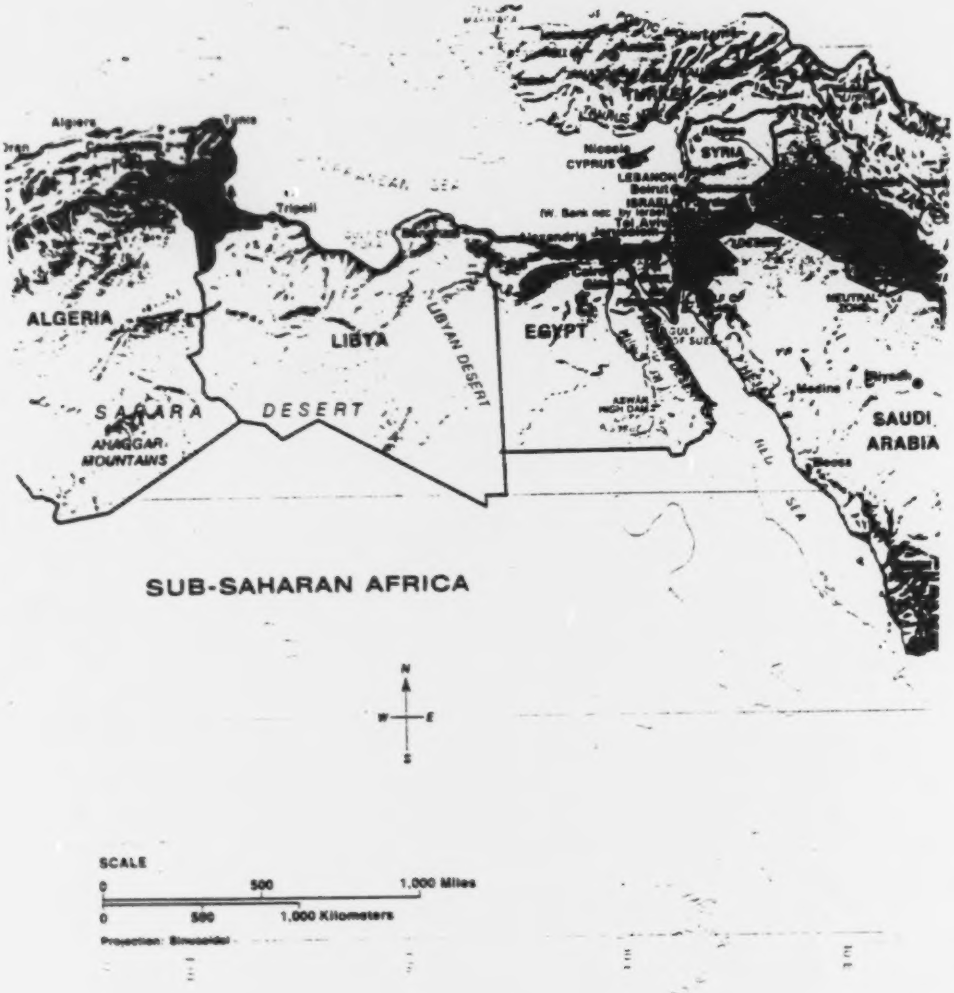
Why was peanut farming in Tanzania unsuccessful?

Facts:

1. The average annual rainfall, according to British data, was adequate for growing peanuts. The soils were adequate for growing peanuts, and the climate was warm enough (the growing season was ample).
2. The average monthly rainfall for each month of the year was fine for peanuts.
3. But the British colonial leaders did not know how often the average happened.
4. During the years in which the government peanut scheme was operating, the average never happened. In most of the years, the rainfall was well below average.
5. Averages are just that. They do not reveal the cyclical nature of rainfall patterns in East Africa over a period of years.
6. Thus, the cost of peanut production in Tanzania was about ten times the going price for peanuts on the open market.

Appropriate Conclusion(s):

Do not be fooled by averages. It is important to know how often the averages actually happen. The British peanut schemers were misled by averages, and failed to look at historic patterns.


Algiers
Oran
Tunis
Tripoli
Nicosia
CYPRUS
SYRIA
LEBANON
Beirut
ISRAEL
(W. Bank occ. by Israel)
Tel Aviv
Alexandria
ALGERIA
LIBYA
LIBYAN DESERT
EGYPT
GULF OF SUEZ
ASWAN HIGH DAM
NEUTRAL ZONE
Medina
Riyadh
SAUDI ARABIA
Mecca
SAHARA DESERT
AHAGGAR MOUNTAINS
SUB-SAHARAN AFRICA
N
W
E
S
SCALE
0
500
1,000 Miles
0
500
1,000 Kilometers
Projection: Sinusoidal

The Nile River flows northward from the interior of Africa. It flows through Egypt . For centuries, Egypt has been called "The Gift of the Nile".

Central Question:

Why do we call Egypt "The Gift of the Nile"?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why do we call Egypt "The Gift of the Nile"?

Facts:

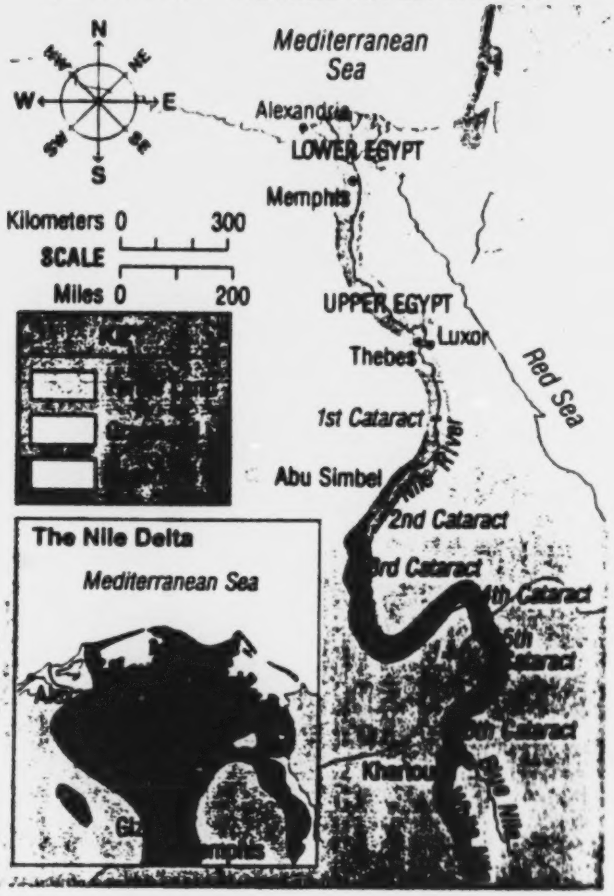
1. Egypt is part of the great span of desert stretching across North Africa.
2. The main source of life-giving water comes from the flow of the Nile River from the interior of Africa.
3. Without the Nile's waters, settlement and agriculture would be impossible as we have known it for centuries in Egypt.
4. All the large towns and cities in Egypt are located along the Nile.

Appropriate Conclusion(s):

Egypt is the "Gift of the Nile" because without the Nile's waters, the nation could not sustain itself. Civilization and settlement as we know them in Egypt would be improbable.

WORLD GEOGRAPHY MYSTERY

EGYPT AND THE NILE RIVER VALLEY


N
NE
E
SE
S
SW
W
NW
Mediterranean Sea
Alexandria
LOWER EGYPT
Memphis
Kilometers 0 300
SCALE
Miles 0 200
UPPER EGYPT
Luxor
Thebes
Red Sea
1st Cataract
Nile River
Abu Simbel
2nd Cataract
3rd Cataract
4th Cataract
5th Cataract
6th Cataract
Khartoum
The Nile Delta
Mediterranean Sea

A delta is a low plain of rich soils built up from mud and sand deposited at the mouth of a river. The soil of a delta usually makes rich farmland. Here the Nile Delta was formed by deposits from the world's longest river. This huge delta was built up over thousands of years. Egypt's vast population depends upon these rich delta soils. But, today Egypt's Nile Delta is eroding away.

Central Question:

Why is the Nile Delta getting smaller, eroding away each year?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why is the Nile Delta getting smaller, eroding away each year?

Facts:

1. For the thousands of years that the Nile Delta was building, the river's flow was unimpeded. It had high points and low points each year in cycles, including the annual flood of the Nile which enriched farmlands.

2. The cyclical flow of the Nile added to the size and richness of its delta region.

3. The construction of dams in Egypt started under the British Empire began to affect the flow of the Nile and the deposit of rich alleuvial soils in the delta.

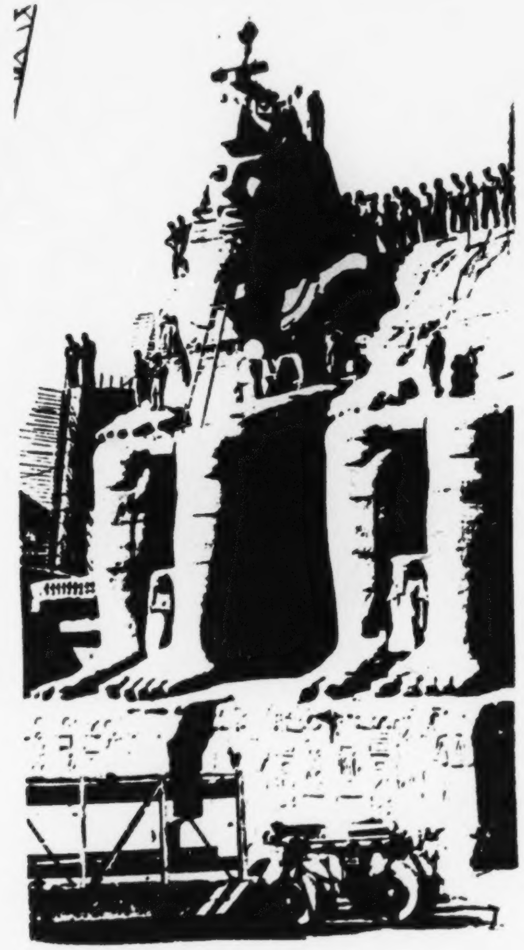
4. The completion of the Aswan High Dam in 1970 ended the annual flooding. It had a marked effect upon the Nile's carrying of soils to be deposited as the river's water flowed into the Mediterranean Sea.

5. Without the constant, dependable addition of new soil deposits from the Nile, the action of the Mediterranean Sea upon the shores of the delta has eroded away much of the land mass.

Appropriate Conclusion(s):

The construction of the Aswan High Dam ended the annual floods and the carrying of rich soils which had historically maintained and enlarged the Nile Delta. Without this maintenance of alleuvial soils, the Sea has eroded the delta land mass.

WORLD GEOGRAPHY MYSTERY



Ancient Egypt has been called the "Gift of the Nile". Along the Nile at Abu Simbel, Rameses II about 1250 B.C. ordered two temples built. The largest temple was dedicated to the Egyptian gods. It had four huge statues of Rameses that reached 65 feet in height. Both temples were decorated inside with pictures and inscriptions. They told about the greatness of these Egyptian gods, including (of course) Rameses II.

Central Question:

In the 196Os, long after Rameses II's death, why were these great temples cut into thirty-ton blocks and moved to another place?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

In the 196Os, long after Rameses II's death, why were these great temples cut into thirty-ton blocks and moved to another place?

Facts:

1. Egypt is a developing nation with many needs and very limited economic resources to meet the needs of its rapidly growing population.

2. Egypt used its resources and resources from many other nations to move the temples at Abu Simbel - preserving part of its past and part of world history.

3. The temples, including the great statues, had to be moved to save them from the rising waters of Lake Nasser - a new lake created behind the new Aswan High Dam. Without the move, the temples with their statues would have been under water when Lake Nasser filled to its capacity.

4. A vast international effort was mounted to raise the money needed to save the temples at Abu Simbel. They were moved to high ground near their original locations. There they were reassembled.

5. The Aswan High Dam, built at a high cost, generates electricity, powers factories, and provides for the irrigation of over a million acres of new farmland.

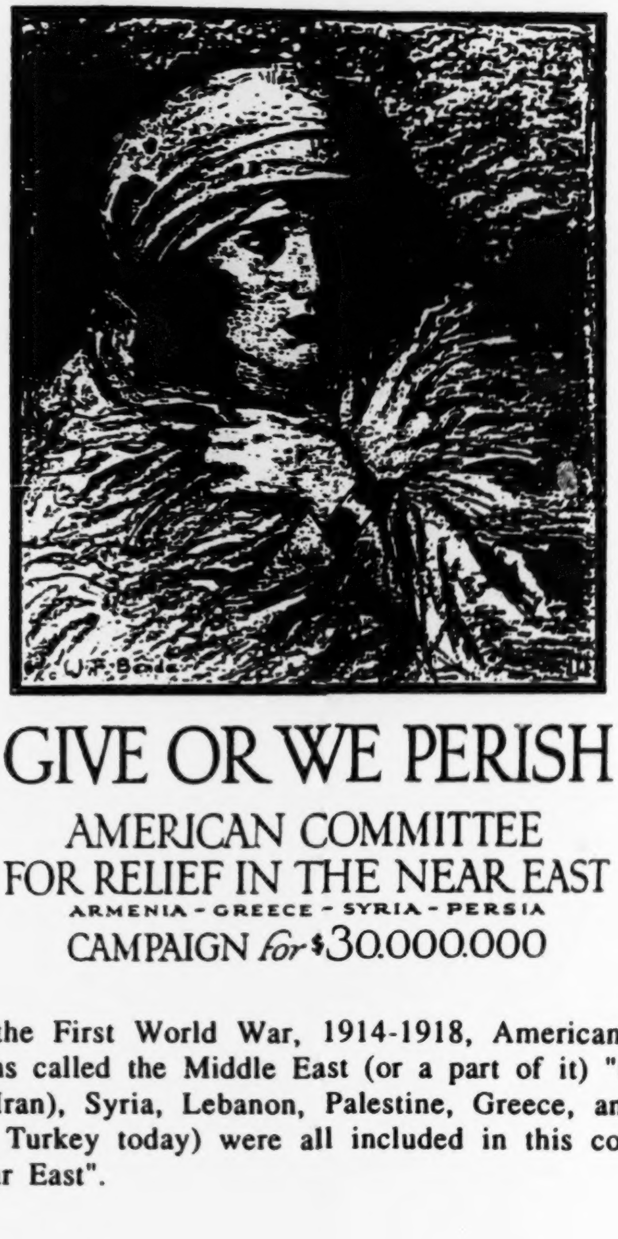
6. Increase in moisture from the new Lake Nasser is causing damage to the walls of the ancient tombs.

Appropriate Conclusion(s):

The temples and statues at Abu Simbel were moved at great expense to save them from the rising waters behind the new Aswan High Dam - thus preserving a part of our common heritage.

PART SEVEN

THE MIDDLE EASTERN REGION


GIVE OR WE PERISH
AMERICAN COMMITTEE
FOR RELIEF IN THE NEAR EAST
ARMENIA - GREECE - SYRIA - PERSIA
CAMPAIGN *for* $30.000.000

During the First World War, 1914-1918, Americans and Europeans called the Middle East (or a part of it) "the Near East". Persia (Iran), Syria, Lebanon, Palestine, Greece, and Armenia (part of Turkey today) were all included in this concept or label "the Near East".

Central Question:

Why did Americans and Europeans call "the Middle East" by the name "the Near East"?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why did Americans and Europeans call "the Middle East" by the name "the Near East"?

Facts:

1. The artist for this WWI poster was Wladyslaw Theodore Benda. Born in 1873 in Posen (then in Prussia, now in Poland) he emigrated to the United States in 1899. He became famous as an illustrator and artist-designer. He designed posters during WWI to help recruit Polish-Americans into the Allied war effort.

2. This poster was designed to get all American to provide money to help in the war effort - "Give or We Perish.

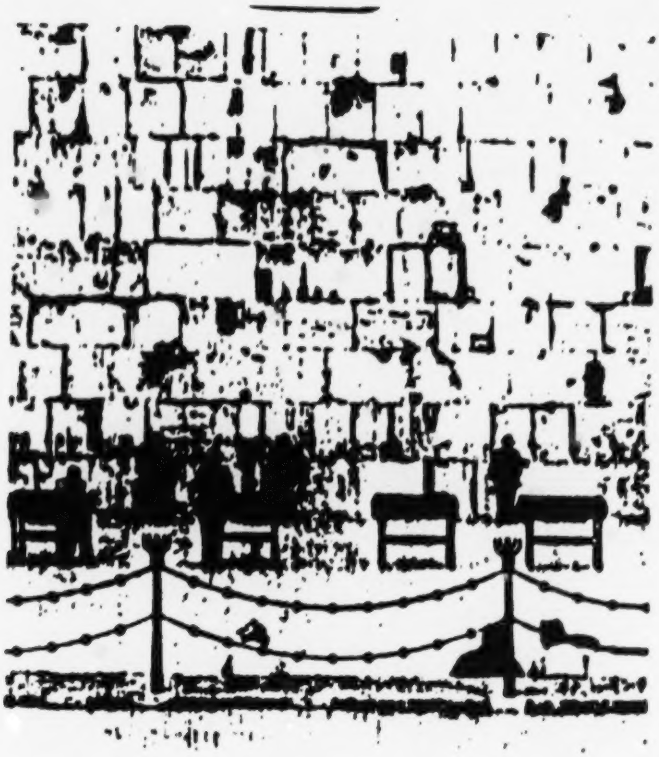
3. Benda used the term familiar to Americans - The Near East.

4. Americans and Europeans "saw" the world from a "center" which was focused upon the North Atlantic. From this perspective, Japan and China were the "Far East". Indian, Pakistan (then part of India), Persia, and Afghanistan were the "Middle East." And the eastern Mediterrean/Southwest Asia region was the "Near East."

5. Today, we use less Euro-centric regional labels -- South Asia, East Asia, Southeast Asia, and so forth. The Near East is "gone". However, "The Middle East" is the one persistent label remaining from this Euro-centric bias.

Appropriate Conclusion(s):

The label "Near East" was simply the bias built into the European (and then the American) world view. Regions were labeled in relation to the world's center of power-- Europe or the North Atlantic community of nations.



The Hebrew Temple of Solomon in Jerusalem was destroyed by the Romans in 70 A.D. Only the western wall remains. This wall became one of the Jew's holiest shrines and is known as "The Wailing Wall".

Central Question:

Does the Wailing Wall really cry?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Does the Wailing Wall really cry?

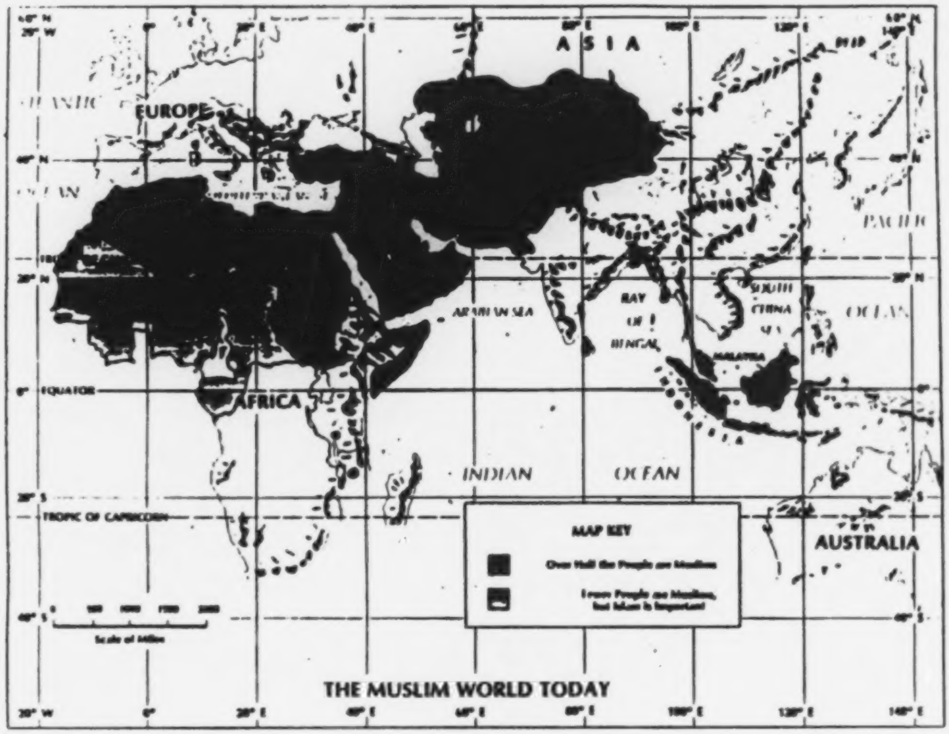
Facts:

1. The Romans attacked the Hebrew Temple of Solomon in 70 A.D.
2. After the attack only the western wall remained standing.
3. The wall is 160 feet long and 60 feet high and located in the Israeli City of Jerusalem.
4. The western wall became one of the holiest of Jewish shrines. The Jewish people believe that the "divine presence" never departs from the wall.
5. Jews lament the destruction of the temple and pray for its restoration.
6. Jewish pilgrims and settlers hold mournful vigils at the wall.
7. European travelers to Jerusalem coined the term "Wailing Wall" after seeing the mournful Jewish praying at the wall.

Appropriate Conclusion(s):

The Wailing Wall was given its name not because it cried but because many mournful worshipers gathered at the wall and cried.

WORLD GEOGRAPHY MYSTERY


ASIA
EUROPE
ATLANTIC
OCEAN
PACIFIC
OCEAN
ARABIAN SEA
BAY OF BENGAL
SOUTH CHINA SEA
MALAYSIA
EQUATOR
AFRICA
INDIAN
OCEAN
TROPIC OF CAPRICORN
AUSTRALIA
MAP KEY
Over Half the People are Muslims
Fewer People are Muslims, but Islam is Important
Scale of Miles
THE MUSLIM WORLD TODAY
20° W
0°
20° E
40° E
60° E
80° E
100° E
120° E
140° E
60° N
40° N
20° N
0°
20° S
40° S

Beginning in the 7OOs A.D., the new religion - Islam - came out of Arabia and spreads across the globe. Today, Muslims live in almost all nations. From Morocco to Turkey, and on to Bangladesh and Indonesia, Muslims constitute a majority of the population.

Central Question:

How did Islam spread so fast and so widely?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

How did Islam spread so fast and so widely?

Facts:

1. Islam is readily understood, without great theological conflicts and elaborate trappings (in contrast to many other world religions).

2. In 632 following Muhammad's death, the Muslims were dedicated to the spread of their faith throughout Arabia and then on a broader basis. (zeal)

3. Other cultures in the Mediterranean area were in disarray and had religions, which at the time were not so zealous in the hold upon the people -- opening the way for conversion to Islam.

4. Islam was especially zealous in the conversion (or death) of those who accepted many gods (polytheists). It was willing to use the sword as well as preaching and the Qu'rab (Koran) -- conquest as well as conversion.

5. Arabs were extensive and intensive traders in Africa, South Asia, Southeast Asia, and even East Asia - by ship and land routes. People in these regions learned about Islam. Muslims intermarried with local peoples. And people came to accept Islam and thus become Muslims.

Appropriate Conclusion(s):

Islam was spread by the sword, by the weakness and complexity of competing religions, and by the extensive contacts of Muslim traders. Spain is the only major area which was once Muslim and is no longer Muslim.

Most outsiders think of Iraq as a dry place, but Iraq has marshes. The marshes of Iraq are a unique region. Miles and miles of water and reeds, with an almost endless variety of birds, plants, and fish. This marsh region is dotted as far as the eye can see with huts...reed houses for people and livestock...floating upon reed masses. People living in the marshes travel and fish using "mash-houfs" (reed boats), poled or paddled silently through the reeds and flowers. This great expanse of reeds and water is shared by people who live there - who are often called "Marsh Arabs".

Central Question:

How were these great marshes formed?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

How were these great marshes formed?

Facts:

1. These marshes are located in southern Iraq.
2. They are fed by soils and water carried by the Tigris and Euphrates Rivers. The rivers flow together into these marsh lands.
3. At one time, the mouths of the Tigris and the Euphrates were over 100 miles inland from where they enter the Persian Gulf today. This extension southward is the result of the delta-building activity of these great rivers.
4. Much of this delta is extensive marshland. But the marshlands also continue up the Euphrates River valley, well above Basra, as the Euphrates flows through several streams or channels.
5. The marshes continue to flourish as they are fed by the constant flows of the Tigris and Euphrates, bringing water and alleuvial deposits.

Appropriate Conclusion(s):

The marhses were formed by the action of the Tigris and Euphrates Rivers, and are continually sustained by these rivers.

WORLD GEOGRAPHY MYSTERY

The Dead Sea is really a salt lake located between Israel and Jordan. It is 8 times as saline as salt water, containing 7 % sodium chloride, 1 % potassium chloride, 45 % magnesium bromide and 11% magnesium chloride. It is estimated to contain 2,000 million tons of potash and 1,000 million tons of magnesium bromide.

Central Question:

Why don't swimmers sink in the Dead Sea?

Chambers
Encyclopaedia, Vol. 5:
The Physical World.
Oxford Illustrated
Encyclopaedia

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why don't swimmers sink in the Dead Sea?

Facts:

1. It is unlikely that fish could live beneath the surface of the Dead Sea. The buoyancy of the water would make it still, "unlively".
2. The word "gravity" originally meant "heaviness", or objects predominantly made up of earth substances had more of this heaviness property than other elements had.
3. The substance salt which fills the Dead Sea is "heavier" than most objects dropped into the sea. Thus the objects are pushed up by the heaviness of the salt.
4. Relative density (specific gravity) is the rate of the density of a substance to the density of water.
5. A hydrometer can measure the relative density of liquids. The denser the liquid, the higher the hydrometer floats, and the greater the reading on the scale where the surface of the liquid crosses it.
6. The Dead Sea is 5 times as saline as the open ocean. Thus, the same principle holds in measuring its density. The density of the sea due to its salt content forces the objects up the same way the hydrometer would float in a reading of a highly dense liquid.

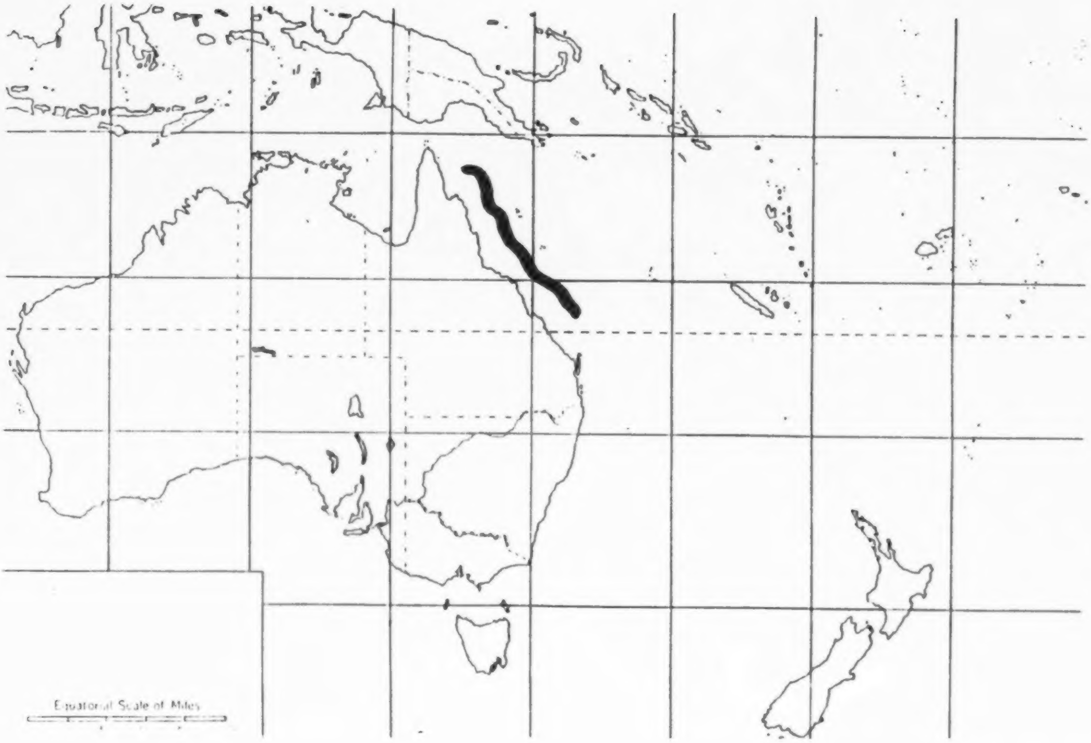
Appropriate Conclusion(s):

The salt and heaviness of the minerals in the Dead Sea keep anything from sinking because its density pushes objects up.

PART EIGHT

AUSTRALIA, NEW ZEALAND, AND OCEANIA

WORLD GEOGRAPHY MYSTERY



The Great Barrier Reef of Australia is considered one of the world's great wonders. It was built over many, many years - and the building continues today. It was not built by human hands.

Central Question:

Why is the Great Barrier Reef said to be "built" but yet not made by human hands?

Teacher Factsheet

Central Question:

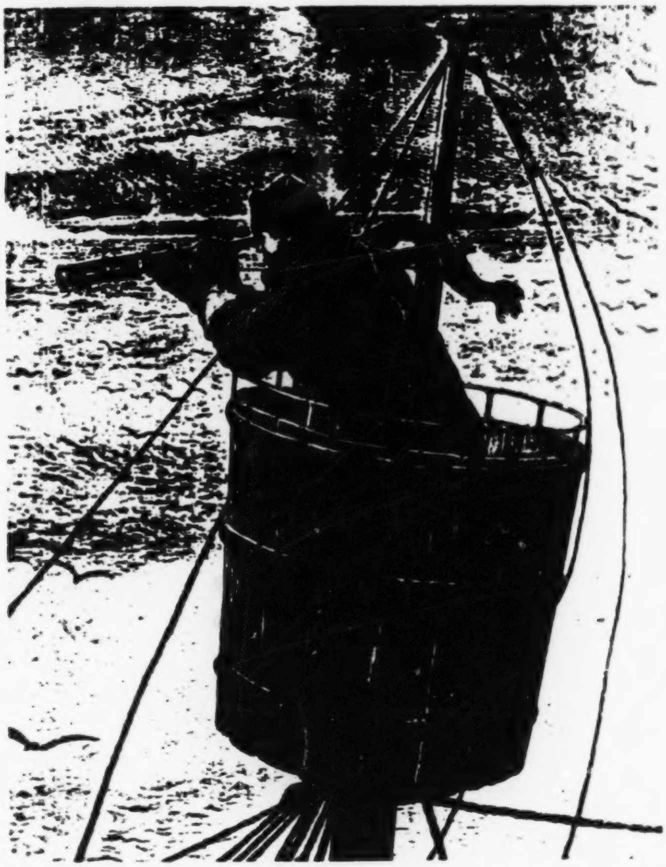
Why is the Great Barrier Reef said to be built, but yet not made by human hands?

Facts:

1. The Great Barrier Reef stretches for 1,500 miles.
2. It is often hundreds of feet wide.
3. It was built up over centuries by countless coral polyps -- made up of thousands of individual reefs and coral islands.
4. The Reef attracts a vast array of sea life and birds. In 1979, the Australian government set aside the Reef as a marine park for all to enjoy.

Appropriate Conclusion(s):

The Great Barrier Reef was built by coral polyps. They made the limestone coral networks millions and millions of deposits over many years.



We have all heard of the dangers of nuclear weapons and how nuclear wastes in the air can cover the globe with radio-active fall out.

Years ago, in 1883-84, the earth experienced many brilliant red sunsets. In fact, for almost a year, the sunsets around the globes were brilliant, red events - much redder than usual.

Central Question:

Why did the world community experience brilliant red sunsets in 1883-84?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

Why did the world community experience brilliant red sunsets in 1883-84?

Facts:

1. Between Java and Sumatra, Indonesia, there are over 100 active volcanoes. One was the massive Krakatoa.

2. In 1883 Krakatoa made a catastrophic eruption. It took over a million years to build up. It was a cone-shaped mountain of 6,000 feet into the air and another 1,000 feet to its base in the sea. Its crater was 4 miles across at the top.

3. On May 20, 1883 a slow eruption began. In June two more eruptions occurred. On August 26, a series of explosions were observed. Then, at 10 A.M. on August 27, 1883, the massive volcano exploded.

4. Dust and debris went 50 miles high into the atmosphere. It was heard 3,000 miles away. It is estimated that five cubic miles of dust and debris went into the air. The sky turned black in daylight. Ships had trouble sailing near the volcano.

5. For a year thereafter, the global community experienced bright red sunsets. Traces of volcanic ash and rock have been found in the great glaciers and polar caps from Krakatoa.

Appropriate Conclusion(s):

In a series of massive explosions, the Pacific volcano KRAKATOA (Krakatau) disintegrated. It threw massive amounts of dust and debris into the atmosphere which circled the globe for a year. The red in sunsets is the "pollutants" in the atmosphere. Thus, the greater the "pollutants" the redder the sunset.

WORLD GEOGRAPHY MYSTERY

Flinders Island
Bass Strait
FURNEAUX GROUP
Cape Barren Island
Banks Strait
Cape Grim
Burnie
Devonport
Somerset
Tamar
Railton
Launceston
Mt. Bischoff
Mersey
Ben Lomond
St. Marys
Cradle Mt.
Great Lake
Rosebery
Mt. Ossa
Macquarie Harbour
Queenstown
Gordon
Derwent
New Norfolk
HOBART
Huon
Tasman Peninsula
Storm Bay
Bruny Island
South West Cape
D'Entrecasteaux Channel
TASMAN SEA

Tasmania is an island off the southern coast of Australia. It is a land of plateaus and rugged mountains, crossed by falling rivers. It was once inhabited by Tasmanians, a short Black ethnic group of people, who are said to have come from Australia or from other islands in the Pacific region. Today, you cannot find Tasmanians on Tasmania. The last Tasmanian is said to have died in 1876.

Central Question:

What happened to the Tasmanians of Tasmania?

WORLD GEOGRAPHY MYSTERY

Teacher Factsheet

Central Question:

What happened to the Tasmanians of Tasmania?

Facts:

1. Tasmania was called Van Diemen's Land until 1853. It had been "discovered" in 1642 by the Dutch explorer Abel Tasman. James Cook, the English explorer, sailed off the island in 1777.
2. In 1804 the British began a settlement at Hobart with both free and convict settlers from the British Isles and from Australia.
3. In 1803 it was estimated that over 2,000 Tasmanians inhabitated Tasmania. In 1828 there were 17,000 European settlers on Tasmania, including 7,500 convicts. The population increased to 70,000 by 1847.
4. The European settlers and convict laborers preyed upon the Tasmanians and their lands. "Bushrangers" sought them out. The "black wars" virtually extinguished the aboriginal Tasmanians.
5. In 1831, the British government removed the last Tasmanians from Tasmania because they were unable or unwilling to protect them from the settlers and convicts. But on their new island home, the Tasmanians languished and died out. (The last died in 1876.)

Appropriate Conclusion(s):

There are no Tasmanians on Tasmania because of the British government and European settlers' program of genocide.